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Devoted to Agriculture, Horticulture, and Rural and Domestic Economy.

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To the Editor of the Farmers' Cabinet.

On Rust, or Black Blight in Wheat.

Sir,—As the season is fast approaching when the rust, or black blight on wheat will, in all probability, make its appearance in many parts of the country, I would call the attention of your readers to an examination of the *cause* of the malady, and thus enable them to provide a remedy for the future in the shape of *prevention*, which is in all cases, but more especially in this, much more easy than *cure*.

I remember, on the fourth day of last July, seeing a large field of wheat on the borders of the mill-race on the Brandywine, near Wilmington, Delaware, so completely covered with the rust as to be scarcely worth the expense of harvesting, but which was, even at that early period, in the midst of that operation—it was, indeed, a caution to behold! I understand that this wheat had been sown on a limed and manured fallow, a cause alone sufficient in that situation to account for all the evil.

An excellent writer observes, "according to our understanding of the principles which regulate and determine the preparation and application of the food of plants, must be our notions of the *diseases* of plants, and our ideas of the best mode or course of cultivating them." A wide difference undoubtedly exists in the formation, functions, and peculiar nature of *animals* and *vegetables*, but yet they may, in many respects, be assimilated; and thus, by comparison, the proper treatment of plants be simplified, and rendered more easy of explanation and comprehension. I shall take leave to state that the observations and experience of many years have convinced me, that the opinions of the great reformer of the medical profession, Mr. Abernethy—"that the most afflicting diseases to which the human species are subjected, are generated *in the stomach*, and consequently are to be remedied *by* the stomach,"—are perfectly just and well-founded; and I am also convinced that most of the diseases of animals and plants may be accounted for and remedied on the same principles. From what has been said, it is clear that vegetables cannot be supported without a due supply of food, and that with those, as with animals, the quantity and quality of food must possess an equal influence. Now, every man is aware that the *quality* of the food he consumes is equally as determined in its effects as the *quantity*, and such, no doubt, is the case with plants, as above observed; and when an animal is constrained to live on meagre, impure food, it is induced to consume a greater quantity, to make up as much as possible for the deficiency of quality, and the consequence is, a distension of the stomach and bowels; and this is often followed by a poverty and corruption of the fluids, which produce disease and debility; and the body is wasted by *eruptions*, and becomes a prey to *vermin*; and when an animal is glutted with *gross* and *rich* food, a surfeit is the consequence, and it is subjected to a stagnation of the fluids, inflammations and eruptions, which often end in mortification and death; and plants, under the same circumstances, are subject to the same consequences; and these observations will be found correctly to apply to and afford a clear exemplification of the rust, or black blight in wheat.

On this subject Sir J. Sinclair says, "It appears from an able paper, written by a distinguished naturalist, (Sir Joseph Banks,) that this disease is occasioned by the growth of minute parasitical fungus, or mushrooms on the leaves, stems, and glumes, or chaff of the living plants; and that the roots of the fungus, intercepting the sap intended by nature for the nutriment of the grain, render the grain lean and shrivelled, and in some cases, rob it completely of its flour; nor is this all, the straw becomes black and rotten, unfit for fodder, or little better than a *caput mortuum*, possessing neither strength or substance." And again, "several of the accidents above enumerated, may contribute to the production of rust, but there are two additional circumstances which likewise tend to promote it: first, having the land in too rich a state for grain crops, and secondly, when too frequent a repetition of crops of wheat

takes place: and it has been well observed, that when crops intended to ripen their seed, are objects of culture, there is not only wanted a degree of vigour and luxuriance in the plants sufficient for the purpose, but if the fertility of the soil be raised to a *higher pitch* than is necessary or consistent with that object, injurious, rather than beneficial consequences may be the result: land may be too rich for grain crops, and it is better to keep it in a well-balanced condition or in a medium state of productiveness for this purpose, than in too fertile a state. The greater quantity of sap and juice in vegetables growing on highly cultivated lands, it is evident, must necessarily render them more susceptible of the effects of sudden and extreme changes, and consequently, more liable to disease; besides, as mushrooms are produced on beds of dung, great quantities of manure must promote the growth of fungi, or parasitical plants on the crops of wheat, if they are once infected — the wheat produced on the site of a dunghill is *always* rusted, even in the most favourable seasons, and if the whole field is a species of dunghill, how can it escape?

A too frequent repetition of crops of wheat, more especially when accompanied by great quantities of manure to force a crop, will often have the same effect. The rust was but little known in the western or northern parts of England, or the southern counties of Scotland, until of late years, when every exertion has been made to increase the quantity of that grain in those countries."

T. A. Knight observes, "By crossing the different varieties of wheat *a new sort may be produced*, which will completely escape being rusted, although crops in the neighbourhood, and in almost every district in the country, may suffer for it in the same year;" and he then goes on to argue, "these circumstances tend to prove, that the rust *does not* depend solely on atmospheric influence; otherwise, it could not be prevented by change of seed, or by the crossing of different varieties." Now, this theory of Mr. Knight's is grounded on a superficial view of things, and is a mere fallacious hypothesis. Indeed, all these great naturalists appear to have bewildered themselves in specious theory, and from not having traced the operations of nature to its source, have, throughout, mistaken *the effect for the cause.*

Now, suppose a farmer was to find a sheep unhappily reduced, and preyed upon by maggots, or the larva of the flesh-fly, he may very justly suppose that the maggots reduced the sheep, and as justly expect, that whatever sheep were subjected to the maggots would be reduced in the same manner—then what would be the best and proper remedy? Knowing the maggots to be produced by eggs deposited by flies, would he try to *cover* his sheep from the flies, or attempt to remove them where there were *no flies?* Now, where is the farmer or shepherd that does not know that flesh-flies *will not* deposit their eggs on a healthy part of a sheep, or if they do, that they will not produce maggots? they know full well, that if a sheep be diseased by eruptions, or if wounded, the flies will find out those places, and there deposit their eggs; and therefore, the remedy is simple—cure and prevent the disease, or protect the wounds, and the evil is avoided—*remove the cause, and the effect ceases.* And very similar will be found the disease in wheat, called the rust, or black blight, and its cause. The fungus undoubtedly preys upon that which is intended to nourish and sustain the wheat, but what afforded an attraction and lodgement for the fungus? *this is the grand question.* It is stated that the fungus is a parasitical plant, like the misletoe, but this is not the fact, for the fungus has no power to attach itself to, or penetrate the *healthy stalks* of the wheat, any more than the larva of the flesh-fly have the *healthy skin of the sheep.*

Any one who will examine the stalks of wheat growing on a luxuriant, rank soil, about the time of its first showing the swelling of the ear, will perceive the vessels to become ruptured, either from the luxuriant flow of the sap upon the tender tops of the plants being checked by cold winds, or an unhealthy overfulness, or some other casual obstruction; and the sap being thus suddenly checked, will rupture the vessels, and ooze out through little slits, or longitudinal fissures; the discharged matter will soon assume the appearance of a white jelly; as it dies, it will become yellow, and then brown, and of a hard texture; and in proportion as the sap-vessels are injured and destroyed, and this exudation takes place, the plant must, of course, more or less fail in its supply of nourishment to the grain. In some cases, the strongest stalks will not be able to push the ear beyond the leaf, and the corn, consequently, will be starved: and whilst the season continues dry and cold, the exuded sap will remain like dry gum; but as it advances, and the weather becomes warm and moist, the gum becomes moist, soft and putrefying, and then it forms and affords a nutritive bed for the mould or fungus, which grows and increases until it is deprived of moisture, or is so reduced as to be insufficient to sustain it, when it dies; and according as the season is favourable or unfavourable to its growth, it produces a brown or black powdery substance in a proportional quantity. Thus then, *the foundation or cause of the rust of fungus is the putrefying matter discharged*

from the ruptured sap-vessels of the plant; and although the ruptures may be occasioned by a contraction or obstruction of the vessels by atmospheric influence; the over-fulness or over-luxuriance of the plant produced by surfeit; or the being glutted with rank and unwholesome food, and its incapacity of digestion, and unhealthy obstructions render it more liable to such injuries; and may, therefore, be considered as the general cause of the disease, blight or rust.

I have planted wheat on a rank compost of dung, which from its first apppearance in the autumn, during its growth in the winter and in the spring, maintained excessive luxuriance, but which was ultimately so reduced by rust as to be rendered weak, and incapable of bringing its seed to perfection. At the same time, and close alongside, I also planted wheat in a pure and sweet sand, and supplied it with a solution or infusion of rotten dung by way of food; this never appeared half so luxuriant as the other, but the stalks or straw grew perfectly healthy, and free from disease, and the grain was of good quality.

I would urge upon your numerous readers a serious consideration of the above remarks: they are upon a subject little understood, but which deserves the examination of every agriculturist throughout the Union. The great diversity of opinion on this subject of blight, must have arisen from the fact, that the *effect* has been mistaken for the *cause*, and whilst that error continues, there will be plenty of crops of rusted wheat — will our friends *look out for them*, as the almanacs say, *now about*.

JACOB LIST.

May 28, 1840.

Why and Because.

Curiosity is one of the most prominent traits of the human mind. The little urchin, almost with his first words, asks "*why* is this or that?" And in riper years, this spirit of inquiry does not cease.—Even the hoary-headed sire, with his trembling lips, asks "*why* is it?"

To cherish this spirit of inquiry, this rational curiosity, is one of the happiest means of diffusing knowledge, and of causing the great mass of community to be enlightened and intelligent.

This is the object at which we aim. As one means of obtaining it, we shall continue a series of questions under the head of "*why and because.*"

All the phenomena of the material world, are explained by the principles of Natural Philosophy, (using the term as hereafter defined.)

We shall first answer a series of questions depending upon the principles of Chemistry. After that we may take up Mechanical Philosophy. Our course will be, first to state and explain the principle, and then propound such questions as are answered by it. So that, whoever follows us through the whole series, will have as good a knowledge of practical Chemistry, as can be obtained by a short course of reading without the illustrations of a Laboratory.

For purposes which may appear hereafter, we shall preface the whole by a few definitions.

1st. PHILOSOPHY.

The word, *Philosophy*, is derived from two Greek words, (*phileo*, [to love,] and *sophia*, [wisdom,]) and signifies the *love of wisdom*. It is the general term used to denote the reason of things; or an investigation of the causes of all the phenomena of mind or matter.

Thus, the object of Philosophy is to ascertain facts, or truths respecting natural objects.

The field of Nature is so vast, that no created mind can range through its whole extent. This has led to the division of Philosophy into distinct sciences. These are again subdivided into lesser portions, bearing to each other a beautiful and striking resemblance.

1. That branch of Philosophy, which makes us acquainted with God, is called *Theology*.

2. That which treats of man as a *moral* being, is called *Ethics*, or *Moral Philosophy*.

3. That which treats of mind, is called *Metaphysics*, or *Intellectual Philosophy*.

4. That which treats of matter, is called *Physics*, or *Natural Philosophy*.

Thus we have the whole range of Philosophy divided into *four* distinct branches—the *first* teaching us the existence of an uncreated, eternal, omniscient, omnipotent, omnipresent, benevolent Being, from natural objects, hence called *Natural* Theology—the *second* teaching us our relation to God and each other as moral beings, unfolding to us the immutable principles of right and wrong — the *third* making us acquainted with that something within us, which thinks and wills, remembers and reasons, loves and hates, hopes and fears, enjoys and suffers, which we call mind or intellect—the *fourth* making us acquainted with the laws and phenomena of the material world.

Physics, or Natural Philosophy, is again subdivided into *three* branches, called *Natural History*, *Mechanical Philosophy*, and *Chemical Philosophy*.

The *first* branch, viz: *Natural History*, makes us acquainted with the form, structure

and habit of natural bodies. This is again divided into Mineralogy, (including Mineralogy proper, and Geology,) Botany and Zoology.

1. *Mineralogy* makes us acquainted with the mineral kingdom; i. e. the form, structure, and habit, of all unorganized bodies; including, not only the solid parts of the earth, but the loose soil which we tread, the water we drink, and the air we breathe.*

2. *Botany* makes us acquainted with vegetables, i. e. with all bodies having organization, and vitality, without the power of voluntary motion.

3. *Zoology* makes us acquainted with animals, i. e. with those organized bodies which have vitality, and the power of voluntary motion.

The *second* branch, viz. *Mechanical Philosophy*, makes us acquainted with the laws which govern masses of matter.

The *third* branch, viz. *Chemical Philosophy*, makes us acquainted with the nature and composition of bodies. While Mechanical Philosophy has to do with masses of matter, Chemistry has to do with particles. The former regards change of place, the latter change of character.

CHEMISTRY.

1. *Definition.* Most substances are undergoing a perpetual transmutation in their physical characters. What at one time is soft, at another is hard, or what is hard becomes soft; what to-day is sweet and palatable, to-morrow is sour or nauseating; what is now of pleasant appearance and agreeable odour, soon becomes disgusting and offensive; what is to-day an invisible gas, or floating cloud, or sparkling dew-drop, may to-morrow be a constituent of a tree, a shrub, a flower, a fish, a bird, a beast, or a man. These changes, whether natural or artificial, whether gradual or sudden, are purely chemical, and the laws hy which they are governed come under the cognizance of Chemical Philosophy.

Thus, Chemistry may be defined as that science which investigates the nature and composition of bodies.

2. *History of Chemistry.* Chemistry, as a science, can scarcely be referred farther back than the close of the seventeenth century. Previous to this, what little knowledge had been accumulated was cloistered with the Alchemist, in his vain pursuit of the "philosopher's stone," or his idle dreams of a "grand catholicon.†" It is, in fact, less than one hundred years, since the science of chemistry has begun to stand forth disenthralled of the chimeras of Alchemy.

The establishment of the Academy del Limerto, in 1651, the Royal Society of London, in 1660, and the Royal Academy of Science of Paris, in 1666, brought a new era. About this time, the discoveries of Black, Cavendish, Schele, and Lavoisier, arose as bright stars in the horizon of science. —Since this period, and the adoption of the New Nomenclature, discovery has succeeded discovery in quick succession. Among these none shine with such transcendant brilliancy, as those of the lamented Sir H. Davy. To him, perhaps, more than to any other one man, are we indebted for the application of chemistry to the business of husbandry.

3. *Utility of Chemistry.* Those sciences are the most interesting and the most profitable which are the most intimately connected with our ordinary avocations. This being true, the proof is easy, that few, if any subjects, (morality aside,) have a more intimate connection with the weal or woe of life, than chemistry. We speak here only of its utility to people in the common walks of life. To such, chemical knowledge is useful—

1st. "*As a source of wealth,*" says Professor Accum, "*Agriculture* can only be rationally improved by calling in the assistance of chemical philosophy; for it is chemistry that explains the phenomena of vegetation, germination, growth, ripening, and death of plants." It aids the farmer in the selection, preparation, and appropriation of his manure, and teaches him the defect or excellence of his soil. It teaches the best mode of preserving animal or vegetable substances for domestic use.—In this and other respects, the *Culinary art* comes in for a large share of profit.

The painter, the potter, the tanner, the brazier, the blacksmith, all carry on their manipulations by the application of chemical principles.

Chemistry teaches the mason how to temper his cement, and to construct fire-places,

* All natural bodies are divided into THREE grand divisions, termed KINGDOMS, viz; The Mineral Kingdom, the Vegetable Kingdom, and the Animal Kingdom. All unorganized bodies are included in the Mineral Kingdom. Hence, in the language of science, AIR and WATER are minerals.

† The Alchemists supposed that the metals were only abortive attempts of Nature to make gold and silver; and that there was a substance which would complete what she had thus begun. To this imaginary power they gave the name of "PHILOSOPHER'S STONE." They also supposed that there was an antidote for all diseases, and even for age itself. This was called the "PANACEA," or, "GRAND CATHOLICON." Another of their visions was the "ALKAHEST," or "UNIVERSAL SOLVENT," by which all bodies could be reduced to their original constituents.

How far removed from the absurdities of the Alchemist are those men, who hawk about the country certain nostrums, as cures for all the ills to which flesh is heir? Many of the Alchemists had the apology of ignorance for their absurdities. But whether modern quackery is more noted for ignorance or impudence, we will not say.

furnaces, and flues, for the production and diffusion of heat; the tanner, the nature of his ingredients; the blacksmith, the brazier and silversmith, the nature and combination of metals; the painter, the composition and properties of his colours. There is not a single process, in all the round of Agriculture or Arts, where change of nature is produced, which does not depend upon the laws of chemical action.

2d. A knowledge of chemical principles aids in the preservation of health.

We do not refer to its utility in the hands of the physician. To him it is as essential as a knowledge of human anatomy. But we speak of its advantage to the farmer and mechanic.

A little knowledge of the nature and composition of bodies will enable us to avoid a thousand evils resulting from the peculiar state of the elements. By this we are able frequently to meet and disarm contagion in its most terrific forms. It directs in the selection of such articles of food and clothing, and such arrangement of apartments as are most conducive to health and comfort.

3d. A third and last reason we have for recommending the study of chemistry to those in the ordinary avocations of life, is, that while it brings wealth and physical efforts, it opens a vast field for intellectual enjoyment. Professor Accum says:—

"Chemistry is not only valuable as an art which supplies many of our wants, our comforts and luxuries; its objects are sublime and beautiful in another point of view. It removes the veil from the fabric of nature, and makes us acquainted with all the phenomena which happen around us—it affords pleasure to the senses, and calls into action a laudable curiosity, which characterizes the minds of those who are of a scientific turn; exciting at the same time a spirit of rational inquiry, which is capable of producing the most beautiful and striking phenomena, well calculated to serve as an instructive and rational amusement."

What farmer would not esteem it a greater pleasure, as he walks through his fields, to understand the nature of his soil—the mode of remedying its defects, or increasing its excellencies,—the nature of his manure, and the manner it operates, than to plod on year after year, following blind tradition or dear-bought experience?

The scientific farmer has his curiosity both awakened and gratified. His researches, though limited, have drawn back the curtain, and he has caught now and then a glimpse into Nature's workshop, and seen things most marvellous. He has seen that the charcoal upon his hearth differs, only in form, from the diamond that sparkles upon the lady's finger, or dazzles in the crown of royalty. He has seen too, that in the little salt-dish upon his table there sleeps a lion, which, if aroused by chemical action, would devour a whole household at a single meal.

He sees himself constantly walking amid elements the most fierce and powerful, held in subjection only by the laws of chemical affinity. He sees too, that if this affinity were but slightly interrupted, the elements would break loose, and wage upon each other the most terrific warfare.—*Tennessee Farmer.*

The True Policy of the Farmer.

Our esteemed Stoddard correspondent says—"If I had a thousand acres of land and but forty loads of manure for my potatoe ground, I would plant but one acre, if the land was not rich." And he at once shows how the farmer gains by citing the cases of his two neighbours, where one plants with forty loads, and the other with eighteen to twenty loads of manure to the acre. The first will hardly fail to get full pay for his additional manure in the first crop, having double the quantity of potatoes; and his grain is perhaps increased two, three and four fold in as many succeeding years. At least one-third the labour on a given quantity of produce is also saved by the higher tillage and manuring.

The profits of farming would be immensely increased by a change of practice. It is our belief that the quantity of manure and dressing applied to one half the quantity of land annually planted with Indian-corn in the four New England States, would turn out in the same season a greater crop of corn than all that is raised within our borders. Let this be done with the same labour bestowed on the larger territory, and most of the farmers would be great gainers beyond this year's calculation. The lightest soil, for at least three successive years without any application of manure, will produce a correspondent increased crop each year; and heavy soils, from four to eight years.

The farmers upon the Merrimack intervales may see an example in the town of Concord. That part of the intervale nearest our village has an upper mould mixed with cold and heavy clay. Through a portion of this flows the water of two brooks crossing the main street, a part of which in the wet season and after each successive rain is left standing on the ground, and turns the natural growth of hay into sour grass. Within the last six or eight years a portion of this land owned by Gen. Low and Col. Grover, has been improved by the application, say at the rate of forty loads stable manure to the acre, and a proportion of sand and gravel carted to the

lowest parts; and this land, after the first crop of corn or potatoes laid down to grass, has produced, for several successive years, never less than three tons, and frequently as high as four tons, of excellent English hay, herdsgrass and clover, to the acre. This hay has never been worth less than twelve dollars the ton; and in some seasons a hay of no better quality has sold at sixteen and twenty dollars the ton.

Adjacent to these two improved spots are several fields of precisely the same kind of intervale land, that have not yielded for many years, and will not now yield more than half a ton of hay to the acre. This cold intervale land is valued only at forty and fifty dollars the acre—it will not pay for the use of that price either as hay or pasturage, because half a ton of this inferior hay is worth not over five dollars, barely paying for the labour and the taxes, without a dollar of income.

Now if an acre of this cold land, producing half a ton of poor hay in its natural state, is worth fifty dollars, what must be the value of an improved acre that will produce three tons of the best English hay? The small piece of land belonging to Gen. Low, being nearer to our former premises, has been more particularly under our observation. Ever since the year 1832, that piece of ground, without ploughing, and perhaps but with once a light spreading of manure over it after it was laid down to grass, has averaged more than four tons to the acre in a year at a single mowing. Nothing else, since the first application of manure, has been done to it than to take off the crop. The great crop, we must believe, is derived not from the strength of the manure alone; the cold, clayey soil, drained of its redundant water, and stimulated by the manure, turns out the increased crop principally from its own strength. All the draining of this piece of land has been simply the opening of a furrow ditch on either side, leading to the main ditch through which the cold brook passes across it.—*Visitor.*

Turnip Culture.

A very large amount of land in England is cultivated in turnips, and fields of this crop of three, four, and even five hundred acres, are sometimes seen, though the common fields are much less: and it may be observed here, that in the richest and best-cultivated parts of England, inclosures of ten, fifteen or twenty acres, are more common. Since the introduction of the turnip culture, bullocks and sheep have trebled in number. Turnips are not great exhausters of land; and they furnish abundant food for animals. Let us suppose that ten bushels of turnips can be raised at the same cost as one bushel of oats—the great difference in the two crops is to be found in the farmer's cattle yard, and then in the barn yard; here is the test of their comparative value; and this is the secret of the great advantages which follow from the cultivation of roots. In England, the value of manure in agriculture is well appreciated—a writer states the extraordinary fact, that the value of the animal manure annually applied to the crops in England, at current prices, surpasses the value of the whole amount of their foreign commerce,* and there is no doubt that it *far exceeds* it! The farmer then, from his green crops, and by a regular system of rotation, finds green food for his cattle, and wheat for the market. —*Webster's Speech in Boston.*

To the Editor of the Farmers' Cabinet.

Lucerne.

Sir,—As I consider the Farmers' Cabinet the channel through which we first obtained information, in this part of the country, respecting a crop which is likely to make a great stir among us, I think its pages should be devoted to the record of any circumstances which might be found to arise relating to its culture, which, if I mistake not, is about to engross a considerable share of the attention of the agricultural community throughout the Union. I must, however, deprecate a Merino-multicaulis-mania in the future prosecution of the matter; let us sit down "doggedly to the task" of examining its real pretensions, and the best modes of introducing it to notice, by proper cultivation on suitable soils and under favourable circumstances, and record the result.

The accounts which appeared some time since in the Cabinet, relative to the crops of lucerne in the island of Jersey, (England,) seemed at the time, to say the least of them, very astonishing; and if they had been supposed to be *quite correct*, must, ere this, have called very general attention to the cultivation of that crop amongst us; unfortunately they came upon us just at the time of the *morus fever*, when we did not suppose that we should ever require any other mode of *making bread*, and people could think of

* The above fact is very extraordinary, but it rests on good authority; and when it is considered that this is of course the product of agriculture, as well as going in the great circle to renew and extend these products, we must have strong impressions of the amazing extent of this great interest. In this case, cattle manure is valued at 4*s*. sterling, sheep at 3*s*., horse at 4*s*., pigs, poultry, &c. at 3*s*. per load, making a grand total of £59,860,000 sterling, or nearly 300,000,000 dollars! and this too, is exclusive of the quantity dropped by cattle on land during summer, autumn, &c.—amounting perhaps to one-third more—and exclusive of lime, moss, shells, fish, bone-dust, &c. &c.—*M'Queen's Britis Statistics.*

nothing else; and since its disastrous exit, they are inclined to consider such flaming accounts as mere moonshine, and will not, yet a while, consent to be led away by "such another ignis fatuus, such another dance."

I am drawn to this subject at the present moment, by reading conflicting testimony, for and against this crop, in the papers of the day, and cannot but think the time is approaching when such very wide differences must be reconciled by practical experiment, and that too, by those to whom such employment will be legitimate — by the *real cultivators of the soil* — not men of all other denominations and persuasions, as was the case in the cultivation of the morus multicaulis, and the breeding of Merino sheep. I find, according to the eastern papers, that the cultivation of lucerne has been tried in several places in that country, and has totally failed; while in the Baltimore American Farmer, for 29th April, there is a particular account of a crop which has as signally succeeded — accounts as opposite as *north* and *south*, and which, possibly, is the main cause of such discrepancy; at the same time, much also must depend on the very opposite nature of the soils in these distant regions; that of the eastern states being about as unsuitable to the growth of tap-rooted plants, extending to the depth of ten or twelve feet into the sub-soil, as can possibly be imagined — proverbially rocky, swampy, and cold—while on the light and warm soils of Maryland, nothing would seem more suitable than a crop which draws its support, even during the hottest seasons, from a depth far out of the reach of the severest droughts.

Now, I must be permitted to profess myself an advocate for the cultivation of this plant in our country; but I do not indulge myself in the idea, that it is suitable for all soils, situations, and circumstances. And although I have seen it growing luxuriantly in a small quantity, adjoining the fence of a cottage on the hill, above the sugar refinery of John Brown & Co., at East Boston—and where it might still be found, I have no doubt —and have failed in my attempts to raise it on the warm sands of Jersey, under the most careful treatment, still, that it may be raised in this country with perfect success, in suitable situations, I am as thoroughly convinced as I am of my existence; but I do not think it can be done to any good purpose in the eastern states generally, or on those lands which have moist and poisonous sub-soils: these last are destructive to its growth, the deleterious matter being taken up by the tap-roots of the plants, in the way described at page 18 of the 3d volume of the Cabinet. The spot at which I attempted the cultivation in New Jersey, was at a farm near the Delaware, three miles above Camden, where the owner gave me a piece of his garden for the experiment: the seed came up very quickly, and the progress of the plants was truly astonishing, and until they were about a foot or fourteen inches in height, all appeared as it should be; but my next visit convinced me that there was an end to all my hopes: the under leaves had turned yellow, and the tops of the shoots were sharp and pointed, and showed that they were struck at the root, of which I was convinced on digging them up, for their tap-roots, all of them, were cankered and rotten, and broke easily, even by gentle handling: still, these plants, after the decayed roots were removed, would grow and flourish, when planted in a drier spot, for a considerable time, but when their roots had again reached the poisonous sub-soil, they would again become prostrated.

My experience in raising this astonishing crop has been pretty extensive, and as I have long been convinced that it is peculiarly suitable to many parts of this country, I would detail a mode in the culture, which, in suitable situations, and under favourable circumstances, would, I am convinced, be attended with perfect success.

The land designed for it should be summer-fallowed, the weeds being carefully gathered after every ploughing, and not a moment should be lost in bringing forward as many crops of seed-weeds as possible, by frequent ploughings and harrowings, turning them down as fast as they come. Before the last ploughing, a covering of well-rotted manure should be spread on the land, and this being turned in, the seed, twelve or fourteen pounds per acre, should be sown, broadcast, in August or September, unaccompanied with any crop, and be immediately rolled in. In the middle and southern states there would be no danger of its being injured by the winter cold, provided it be protected by the usual quantity of snow, and although the weeds, which might still remain in the soil, may spring up with the lucerne, yet as they would be prevented from growing in the winter, that crop would shoot earlier in the spring than they, and would soon out-top and overgrow them; while four or five cuttings of the lucerne during the next summer, would prevent these weeds from obtaining even a chance of success.

It is a mistaken idea that lucerne requires a rich soil: this is by no means the fact; indeed I have known several attempts to raise it on such fail, in consequence, I have thought of this very circumstance — but a *suitable* soil is quite necessary, and what that is, is not sometimes easily definable beforehand;

but experiments on a small scale will soon point that out. The *sub-soil* for this crop is of much more importance than the *surface*, and the most prolific crops have been obtained from soils supposed too barren to produce any profitable yield whatever. Ashes form an excellent top-dressing for lucerne, as they contain no seeds of weeds, and this is a circumstance of incalculable importance to its future well being: all other manures should be applied during the frosts of winter, for before the seeds of the weeds, which might be contained in them, can vegetate in the spring, the lucerne has started, and will then keep the lead: and when the crop has taken full possession of the soil, nothing appears more tenacious of life, or equal to cope with it, especially during a season of drought, when all other vegetation has disappeared from the face of the earth; then, I have often known it to shoot away at the rate of two inches in height every twenty-four hours. It has been the custom in some places, to raise the crop on a seed-bed, and transplant the roots, but this is changing the nature of the plant, for its peculiar characteristic — a tap-rooted plant — is thus destroyed; and however much it might thereafter flourish on good soils, it is not so fitted to *pump up*, from the depth of twelve or fourteen feet, moisture sufficient to sustain a crop of eleven tons per acre, during the hottest season of the year; nor is it, after that, so well able to cope with the weeds, as its strength is never so great as when its roots are deep, and forms a woody crown about three inches in diameter, bidding defiance even to the plough-share, and seeming to gain strength from the roughest treatment.

Nor is the very general practice of drilling the seed, and keeping the rows clear of weeds by the hoe, at all to be recommended; it is thus made to flourish, but it is at the cost of too much labour and expense; nor have I ever known a hoed crop at all to be compared with very many that I have seen broadcast, and which had been raised with little expense or labour. The observation, at page 258, vol. 3, of the Cabinet, that unless the lucerne crop is sown in drills, and kept clear by hoeing, it will never answer to the farmer, is erroneous — nothing can be farther from the fact — thick sowing in the autumn or late summer on a clean and suitable soil, will render quite unnecessary drilling and hoeing; and will insure larger crops than can be obtained by any other mode of management.

Lucerne has been denominated an impatient crop, but on soils when suitable, nothing succeeds so well, or with less trouble; the seeds start in a very few days, and the growth of the plants is at first as decided and rapid as the common red clover; but it must be admitted that after this, it seems ready to give way to a crop of weeds, and the most promising prospect is often destroyed in a few days. But to those who are acquainted with its habits, the cultivation is neither difficult or hazardous; and when it once decides the question "to grow, or not to grow," in the affirmative, there is no crop on earth that can at all keep pace with it; and it is then a crop for life, or thereabouts. The best crops which I ever knew, were those which grew on the sea-shore, not two feet from high water mark — nay, I have known it grow and flourish on the sea-beach, overflown by every spring tide, without suffering the least injury from it. Those crops grew on white sand, with not a particle of earth to be seen in its composition, and there were, of course, no weeds to impede its growth; but, at the depth of several feet, this bed of sand was found resting upon a substance of fine light mould, into which the roots had penetrated, and produced crops which were truly astonishing in their bulk and vigour; and upon these fields it had been customary to tether cows during the whole summer, for ages, without manure, and yet no diminution of its strength was ever dreamt of. During the whole of the winter, not a blade of lucerne was to be seen, the roots had all been covered by a light coat of sand, which had been blown up from the beach: this protected the crop from the frosts; and very early in the spring, the shoots of lucerne would be found penetrating it in all directions, like asparagus plants, and in a few days they would spread the surface like a carpet, furnishing, in about the space of two weeks, excellent food for cattle of every description, and upon which hogs would fatten, fit for slaughter; it being remarkable that these last, after masticating even the woody stalks of the plant, would not eject any portion of it, but swallow the whole.

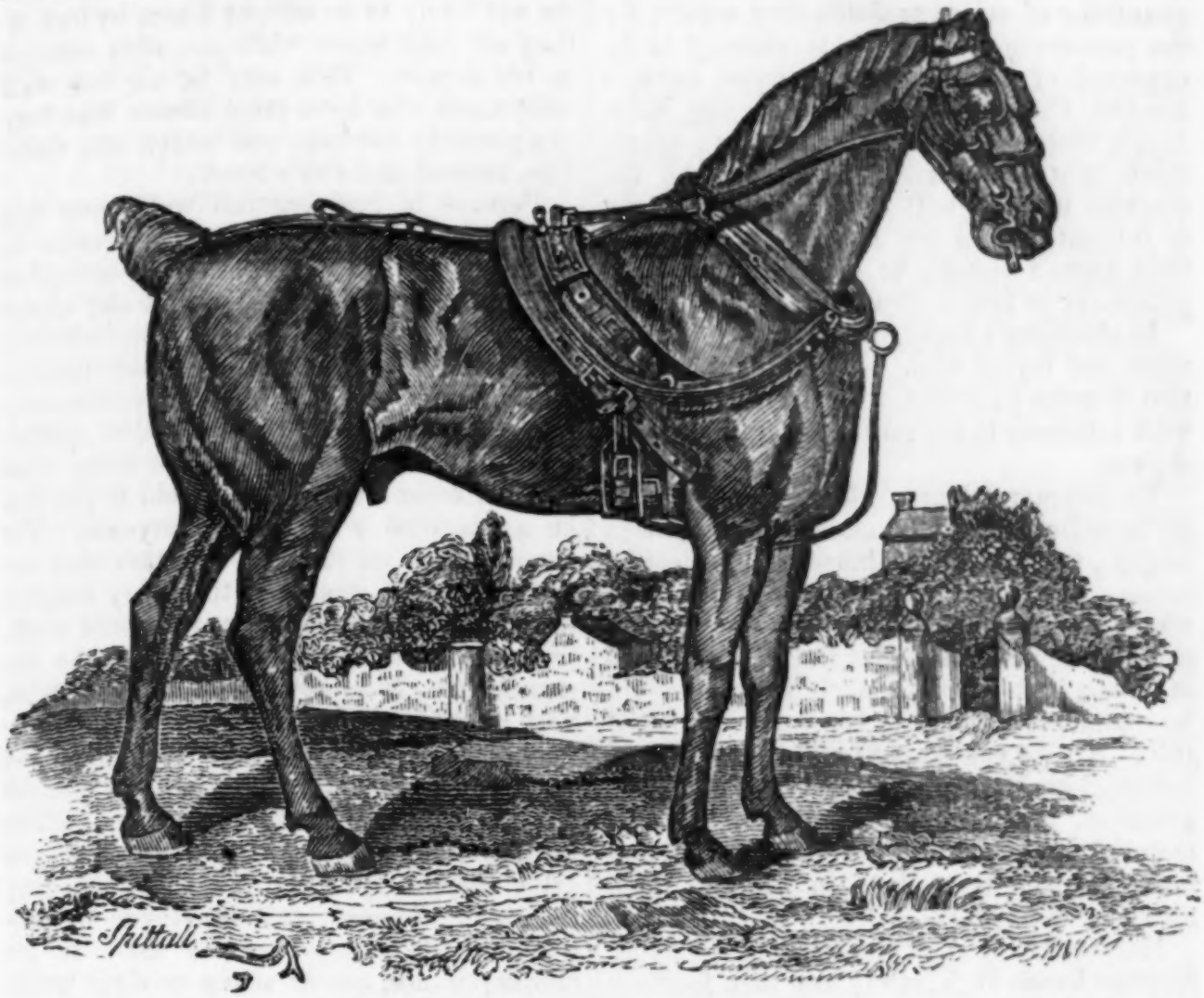
In my next, I may resume the subject of the cultivation of this remarkable crop, and in the meantime offer my best wishes for the success of your valuable work.

Vir.

May 28th, 1840.

P. S. Any of our friends intending to enter into the cultivation of lucerne, should immediately prepare, by summer-fallowing the land, harrowing after each ploughing, to encourage the weeds to vegetate, destroying them by turning down, and harrowing for a fresh crop immediately.

"A trifling debt makes a man your debtor, but a more weighty one makes him your enemy."—*Lat.*



THE CARRIAGE HORSE.

The Carriage Horse is a cross of the Cleveland mare with a three-fourth or thorough-bred horse, possessed of sufficient height and substance.—This is the coach-horse of the highest repute. His points are, substance well placed, with a deep and well proportioned body; strong and clean bone under the knee; his feet open, sound, and tough. He possesses fine action, lifts his feet high, which gives a grandeur to his figure and paces: he carries his head well, and has a fine elevated crest.

The Horse.

The best horsemen are to be found among gentlemen. They feel proud of the accomplishment of being good riders, and they are early accustomed to the sports of the field. With "all appliances and means to boot," it would be strange if they did not possess the best horses, the best trainers, and the best grooms. But the mere traveller's horse is comparatively a sorry affair, the master having little spare time to see to the wants of his steed, leaving him to the mercy of rapacious ostlers, or people utterly unfit to be entrusted with the management of horses. Yet he might, from the knowledge he may acquire by the perusal of these pages, turn his horse to much better account, save himself much expense in the course of the year, get the animal to do his work in a better manner, and with the pleasing reflection that he has also prevented the infliction of needless suffering.

In a religious point of view, it is also incumbent upon us to treat with kindness all those animals which are given to us for our use. The horse, in particular, should be an object of our especial regard. How many of the complaints under which he labours are the consequences of man's brutality! His diseases are few, even in an artificial state, and those few are brought on by ill-treatment, or, in milder language, mismanagement. Yet there may be quite as much cruelty in the one case as the other, if the latter be not of the two the worst.

Whose horses have to undergo such unremitting fatigue as those of commercial travellers? Yet, where is there besides so large a body of men who are enabled to pay so little regard to them, or to acquire a competent knowledge of the best mode of treating them? They know that horses have mouths to be fed, for this knowledge is forced upon them by the cost of their keep; and they know also that the mouth is useful as a place for the bit, without which they could not be ridden or driven, and this, generally speaking, is the full extent of the knowledge possessed by the class of persons alluded to of horses. To understand the

quantities of solids or fluids they require for the preservation of health, is scarcely to be expected of them. Some persons have a fanciful theory in favour of giving them drugs, both in their meat and water; others think that filthy water is better than the clearest, as they will drink more sparingly of it; but horses are not likely, any more than human beings, to grow healthy upon poison, or to fatten upon filth.

In choosing a horse, consider well for what work you intend him. If you want him for two or more purposes, judge of his qualities with reference to the most important of those objects.

To commercial men, who now seldom ride on horseback, but who make their journeys in gigs, a good harness-horse is the desideratum. This is more especially the case where the traveller has to convey weighty samples or patterns. But for the exact kind of horse best fitted for such uses, it would be extremely difficult to lay down any fixed rule. All we can do is to give some general instructions, by means of which, with a little attention, the judgment of persons may be materially assisted in the selection of animals for use, as well as in keeping them ready for their work.

Horses for the road should never be under fourteen hands high, rarely less than fourteen and a half, and never above sixteen. As a general rule, fifteen hands and a half should be the extent. If your horse be required to draw a light chaise, without much incumbrance, he may be small, and the better for being three parts blood. Where there is more weight to contend against, you must choose a heavier horse. Bear in mind that, as a rule, there must always be weight to contend with weight. A heavy animal, by merely throwing his bulk against the collar, materially assists in moving his load, while the lighter one, if over-weighted, has all to do by muscular power, which soon becomes exhausted; for, in the latter case, the horse is continually straining to effect by violence that which in the former is accomplished by weight only. Otherwise, give each horse his burthen in proportion to his weight, and the blood horse would kill the other in a very short time. For the heavier loads, therefore, speed and breed must be abandoned for weight; and the horse must have the round arched neck, large rotund barrel (or body,) and rounded hind quarters.

On the proper age of the horse much prejudice exists, and many false notions prevail. One person supposes that if he buys a horse when he is young, it must last him so much the longer than if he had bought him at a more advanced age. Others, again, imagine that having purchased a young horse, they are not likely to be serious losers by him, if they sell him again while the mark remains in his mouth. This may be all very well with those who have more horses than they can possibly exercise, and which are, therefore, unused to a day's work.

Persons in business full well know that they do not pay men's wages to persons in their employment until they have arrived at the age of twenty-one; not from any unjust motive, but because they have not attained the strength of manhood to enable them to perform men's work. It is their competency to go through so much labour that entitles them to full wages. Now, the horse must be from seven to eight years old to put him on a par with a man of twenty-one. Yet people are so misjudging, or rather they are so ignorant of this fact, that they imagine the horse is better calculated for hard work, or long journeys, before than after the age mentioned. If experience could teach them, they might readily perceive the younger the horse is, the sooner he will be strained and worn out, by being overtasked. Where the work is light, and the stay frequent, at places no great distance apart, and provided you drive moderately, a six year old horse may suit your purpose; that is, if you are particularly anxious to have a mark in his mouth; if not, one of seven or eight would be preferable. In cases where the loads carried are light, and you do not often rest any length of time on your route, or if your vehicle is heavy, and you do not drive at a very moderate pace, never choose a horse under eight years old, and then he will last you longer and serve you better than any young one. Stage-coach proprietors, and all great dealers in horses, do not consider them aged until after their sixteenth year; and provided they have not been subject to ill-usage, they will be found sound and in good condition long after that period.

Old Elwes, the celebrated miser, would not permit his colts to be broken in until they were six years old: the consequence was that when his horses were upwards of twenty years of age, upon their backs he was able to beat any other cattle in the field in hunting. All that is required for work are young legs, and what are termed old mouths. This description of horse is absolutely necessary for the heavy wagon and four-wheeled carriages.

It must, nevertheless, be admitted, that horses may also be too old; but so long as they are sound upon their legs, and keep up their condition, they are always better suited for hard work than young ones. At the present moment there is living a grey mare, the property of a surgeon in the neighbourhood of Finsbury square, upwards of forty

years old, yet which still does her work in admirable style! It is an attested fact, that, at thirty-six years of age, this surprising animal performed a distance of eighty miles a day, two successive days, and one hundred miles in one day; and that too, without exhibiting any remarkable symptoms of fatigue! This, it will be said, is a rare instance of the powers of the horse, and so it is; but it is so chiefly from the disposition of most owners of horses to overwork them when young, and so wear them out before they are old. The mare in question is still perfectly straight on her legs, and free from all complaint, except a slight asthmatical cough, observable only on foggy days, and then only on coming out or going into the stable. It occasions no real inconvenience, and is merely a sign of the natural effects of time on her constitution.

It may be here worthy of remark, that many persons are using very old horses, imagining them to be much younger than they really are. For instance, a gentleman keeps a horse until he supposes him to be sixteen, or thereabouts. He then thinks of disposing of him as being worn, and getting a younger. The animal is accordingly transferred to a dealer, who sees him well upon his legs, and fresh for his age. He then *bishops* * him, so as to make him appear of the age for which the dealer wishes him to pass. Should he chance to find a considerate owner, he passes on again, until he is a second time regarded as too old for further service. Again sold to a dealer, ground young again, re-sold, and a new purchaser pleased with the idea of his young horse. Cases of repeated bishoping are now less common than formerly; but that they have occurred, there can be no doubt; and the old grey mare alluded to would probably have undergone this operation more than once, if she had ever been so unlucky as to have fallen into a dealer's hands. The Dowager Lady Lonsdale had two old hunters as carriage horses, the one thirty-nine, the other forty-one or forty-two years of age. Some time since, two horses were working as carriage horses, at Dulwich, even older. The late Mr. Astley was presented by the Duke of Leeds with a Barbary horse, that became very celebrated, performed as a waiter, and lived to the great age of forty-three. It was not long since recorded in *Bell's Life in London*, that a horse had died upwards of fifty years of age. Many other instances of the longevity of this noble animal might be adduced, but enough have been quoted to prove that if the horse be not old from abuse, he will not be so from years at eight.

* Marking the teeth with a hot iron.

Dialogue.

CULTIVATION.

Frank.—Father, our conversation on pruning has never been absent from my thoughts: it has indeed proved, as you said it would, a source of great delight and instruction to me. I often visit the tree which you pruned at the time, and am astonished to find how very correct were all your ideas, respecting the manner in which that work ought to be done; and how true to nature is the similarity between the cultivation of trees, and the management of children—some of which might be *pretty big ones too.*

Father.—The more you reflect upon and examine the subject, the more interest you will feel, and the clearer will be the truth of the observation.

Frank.—I have no doubt of it, for I find myself making new discoveries every time I visit that tree; it might be said to be a *living lesson.*

Father.—Good—and do you ever remark the three branches which we particularly noticed at the time of pruning, and which we named William D., John Timms, and Sister Susan?

Frank.—Indeed I do, very particularly, and cannot help thinking they were pretty good likenesses. The fine large branch, so tall and so straight, which, when you had treaded down, I thought you had spoiled the tree for the whole year, has, from the part which remained attached to the tree, thrown up two beautiful branches, one on each side, like twins, exactly of the same height and size, of a deep-red colour, which, I have heard you say, is a sign of fruitfulness; and they are clothed to the very foot of the stalk, with buds and leaves at short distances—and that is, I believe, another good sign; and more than that, they are shooting up into a part of the tree which before was thin of branches, filling the vacancy, and rendering the tree much more beautiful than it ever could have become, had that branch remained in its original state. These new branches are indeed, as you said they would prove to be, "useful as well as ornamental, affording shelter to their parent, instead of shooting above, and out-topping the tree; exposed to every blast that blows." What a pity that William D.'s mother had not received the benefit of such a lecture "on pruning" in her youth!

Father.—But what did you remark of poor John Timms? do you think he is the better for the training which he received?

Frank.—I was just coming to him: he still shows that he is too willing for his strength, for he is loaded with fruit from the bottom to the top, and which it is not possi-

ble can ever be brought to perfection; I suppose you will have to pluck off more than one half. The appearance of health and strength is, however, much increased; and although the branch will always remain like poor John, deformed, yet by careful and kind treatment it might long continue one of the most useful, although not the most ornamental branches of the tree; a living proof of the value of judicious training.

Father.—Well, now for Sister Susan.

Frank.—Oh, sweet Sister Susan! indeed the likeness is complete! there is the pretty red branch, and the beautiful shining leaves, with fine fruit peeping from beneath them; all of the same size, and growing exactly where they ought to grow, with the red and white so sweetly mixed, although still so small in size, with a leading shoot from the top of the branch, covered with leaves; without blight, or canker, or mildew! Oh it is pleasant to look upon! this comes of good training.

Father.—But is there any hope of Frank on the other side of the tree?

Frank.—There is—and the first time I saw the bud bursting from the body of the tree, I confess that I was quite overcome by my feelings: Oh, shall I not watch its progress, and witness its growth and tendency with anxiety!

Father.—Let but my prayers be granted, and I shall have abundant cause for rejoicing!

Frank.—But, Father, is not the growth of the tree dependent, in a great measure, upon the kind of soil in which it is planted?

Father.—There, my boy, you have laid open a large field for observation and reflection; and suppose now, we follow it out, and see if it be not true, that "the growth of the tree is influenced, in a remarkable degree, by the nature of the soil in which it is planted." Shall we divide the different qualities of soil in the following manner:

1st. The happy soil—neither too heavy or too light, too wet or too dry.
2d. The heavy soil.
3d. The too light, or sandy soil.
4th. The wet soil.
5th. The dry and impenetrable soil.
6th. The rich surface, and sterile sub-soil.
7th. The poor surface, and rich sub-soil.
8th. The sour and stubborn soil.
9th. The rich soil, with poisonous subsoil.
10th. The sickly, or too highly manured soil.

Frank.—Well, here are varieties of soils! shall we be able to fit them all with *likenesses*, do you think?

Father.—Many of them will be easily matched, I think—and to begin with

1st. The happy soil; which requires neither liming, manuring, draining, or watering—whose excellent properties are so nicely blended, and whose productions are so beautiful, rich, and in such profusion—can any thing be more like the Founder of the Ladies' Depository in Philadelphia!

Frank.—Oh, excellent! a real portrait.

Father.—2d. The heavy soil, which produces a thick and burly bark, short, coarse, rough leaves, with short, crooked branches; and fruit, although of a healthy growth and colour, with no delicacy of flavour; bitter to the taste, with large pints, to which the flesh of the fruit adheres very closely. The tree comes late into bloom, and the fruit ripens late; but it is generally a good bearer of fruit, *such as it is.* Now, who is this? or shall I name him—what do you think of Tom Dobbs, on the other side of the hill!

Frank.—As like as life! even to the shortness and roughness of his limbs: a hard-working man, but rough and brutal in his manners; and although he provides for his family as a duty, to the pleasure of the task he must be a perfect stranger; his children are coarse in their manners, and sour in their dispositions, and are never sent to school; hard workers, however, and they produce much fruit, *such as it is.*

Father.—Very well—now, shall we cultivate the soil as we go? This tree requires but little pruning, you will observe, as it produces but little wood; all that it does produce, however, it ripens well.

Frank.—Yes, let us cultivate as we go: now, how would you set about it in this case?

Father.—It would be merely to trench about the tree, dig in a good quantity of sandy loam, with lime *as a sweetener*, and depend upon it, in a year after, the results would be manifest—a more open disposition, warmer feelings, sweeter fruit, a more luxuriant foliage, and a *smoother bark.* Now for

No. 3. The too light, or sandy soil. This is indicated by a tree of a weak and sickly aspect; long and thin branches, very thin and light-coloured leaves; comes early into bloom, and is very apt to blight in the spring, if the season is cold; it sometimes, however, escapes, and then it brings an early crop of sweet fruits of little flavour. During the summer it throws out much thin and long wood, which is sure to die back in the winter, rendering it necessary the next spring to tread down almost every individual branch. It sheds its leaves early in the autumn, and its weak limbs are very liable to be broken and wounded by the storms of winter. Now, who is this?

Frank.—Oh! I know that—it is Samuel Slimm, the tailor in the village, and is it not

like him! you know how tall and slim he is, and how sickly he looks, and how thin and sandy-coloured his hair; active and industrious, but complains of the steepness of the hill behind his house, and is not able to leave his home until the season is warm, and the cold weather has passed; civil and kind-hearted, but with little energy, either of body or mind; while on the approach of winter he keeps to the house, and suffers from every change of climate. Now, you must be gentle in the cultivation of so tender a subject.

Father.—Yes, I would trench up the sand, and mix with it a large dose of strong loam and lime compost; prune very close, leaving but about three buds on each branch, and *look well to the worms*, which such a weak and sickly subject is pretty sure to be infected with.

No. 4. Is the wet, a most unhappy soil, truly! It is shown by strangely formed branches, sometimes smooth and straight, at others, crooked, burly and rickety; with leaves of different sizes and shapes, smooth or wrinkled, green or yellow, thick or thin, just as the season happened to be during their growth: the tree generally glutted with too much moisture, and in a happy state only when others are parched with drought: nothing more uncertain than its fruiting; sometimes producing largely at a time of general failure, and barren in the most fruitful season. The wood which it makes during the summer, dying back almost the whole of its length, but shooting again vigorously from the first living buds in the spring: sometimes healthy to appearance, with large promises of productiveness, seldom realized. Now, see if you can find any one so unfortunately situated in life.

Frank.—Well, to be sure it is a wretched picture, and yet, I think, poor James Snooks, the shoemaker, is the pitiable object. You have often remarked, as he passed, that he is the strangest being you ever saw; lively in a time of sadness, and gloomy and sad at merry-makings: always preparing to do great things, but failing, just at the time when great exertion is necessary: sick, but not sorry; sorry, but not sick; doing more work in a week than any one, and less in a fortnight than all: joyous, grievous, bright, and gloomy, all by fits and starts. Now, how could any thing be done to recover so pitiable a case?

Father.—It would, indeed, require a *regular course of medicine*, and strong measures, but even here I should not despair of perfect success. I would fairly remove the tree, clean the roots, dig out the earth to a great depth, and if on a declivity, I would drain the soil; if on a level, fill the hole with about eighteen inches of brick and mortar rubbish, and well ram it down; and upon this I would spread a thick bed of good mould and lime, replace the tree, and support it by tieing it to stakes with hay ropes, and my life for its recovery; looking well to the worms, however.

Frank.—Well, these would be decisive measures, at any rate.

Father.—Yes, and would be decidedly efficacious.

No. 5. The dry and impenetrable soil, shows a tree, poverty-smitten in all its parts; unable to do much, nor that little to any good purpose; brisk and lively, however, in early spring, and making exertions to push into bloom and leaf, but cramped and spell-bound midway: the under leaves fall prematurely, but the wood which it makes during the summer is retained through the winter, although but little of it; stunted and bark-bound, but healthy in a degree, and not liable to be affected by the worms, for that reason. Now, this is so common a character, that we have known many such, who are truly to be pitied. To recover such a tree, it is only to "dig about it and dung it, and let it stand another year," adding, however, a good portion of lime with the earth, on filling in.

No. 6. The rich surface and sterile sub-soil; frequently to be met with, and often the cause of disorder, disease, and death, to the tree that is planted in it; the richness of the surface-soil calling forth early spring foliage, and the most promising expectations; the sterility of the sub-soil causing a lamentable falling away of the brightest hopes, and the most grievous disappointment. In early youth, it is lavish of foliage, and the sweetest blossoming; all appears well, and as it should be, and no one would suspect the mortification which is sure to follow, when the roots have penetrated to the poverty-stricken soil below. Now, this is a character which is, unhappily, very common, and is aptly figured out in the case of William D., in our former conversation. Hundreds of such young men, reared in the rich surface-soil of parental affection, their cultivation neglected through a mistaken fondness, after giving promises of the most enviable greatness, are doomed to poverty, disgrace, and contempt, through the want of the *proper stirring of the sub-soil*—the only security for parental hope. Such cases require a strong hand—nothing less than a regular trenching will be of any avail: the rich surface should be turned down, and the sterile sub-soil be brought up, to be enriched by future dressings, lime forming a large proportion in every stage of the business; for it is much to be feared that the worms will be found to

have made sad havoc near the root of the tree, as, disease arising from the poverty of the sub-soil, will, in all probability, have engendered life. Lime and deep trenching will, however, heal the malady, if applied in time. To this disease is owing the change of the colour of the leaf before the autumn, and the falling of unripe fruit, with many other symptoms of premature decay.

No. 7. The poor surface and rich sub-soil are also very common, and before the tree can reach the good soil beneath, poverty has stricken it, and many there are which perish for want of sustenance, not having strength sufficient to reach the buried treasure; they languish for want of support, and without timely assistance are doomed to starvation. We may find many semblances to this case, I fear, amongst the children of the poor and friendless; for, according to the poet,

"Full many a flower is born to blush unseen,
And waste its sweetness on the desert air."

Frank.—Yes, and I know one who is so unfortunately circumstanced: it is poor George Hastings, the apprentice to the blacksmith; how I pity him, when I see him drawing figures with chalk upon a board, and hear him sigh, because he cannot read! while his brutal master checks every attempt at improvement, and does all in his power to keep him in ignorance, that he may the better suit his selfish purpose, "wondering what such a one as he should want with learning." If he could be helped forward, I have no doubt he would make great progress, for he is remarkably bright; but he has not strength of himself to reach the rich sub-soil.

Father.—This is the easiest of all the disorders above enumerated, to cure; it is only to dig deep into the surface-soil some good compost and lime, repeating it after a time, when it will soon be found to strengthen the roots, so as to enable them to strike deep enough to reach the rich sub-soil, and so to help themselves. We will look after George Hastings, remember: I dare say we can assist him, until he is able to help himself.

No. 8. The sour and stubborn soil. A wretched bed indeed! nothing but discontent and disorder can spring from it. The tree that is planted in such a soil, exhibits almost all the disorders that *trees are heirs to.* The rough and knotted bark, the faded leaf, the late springing, and early falling of which, show the malady contained in its system—the crooked branches, and very short shoots of a whole summer's growth; while the canker-worm is ever grinding his way between the bark and the body of the tree, destroying its energies, and crippling all its exertions! I suppose you will not be at a loss to find a poor unfortunate neighbour, who is too much in the state of this pitiable tree.

Frank.—I cannot be mistaken, it is poor farmer Grabb! and see, here he comes, that's remarkably odd! and how strangely he looks.

Father.—It is so, but strange as he is, and deficient in energy and perseverance, he is greatly to be pitied, as well as blamed, for the world appears to him a blank, or even worse; the errors of his education, too, haunt him, and he is always foreseeing coming events of the most gloomy character; poor man, all goes wrong with him, because he takes things by the wrong end. Good day, neighbour, this is fine weather, isn't it?

Grabb.—Ah, 'tis all very pretty while it lasts, but I see, very plainly, that a change is coming, for the old rooster, when he crow'd this morning, turned his tail to the rainy quarter, and that 's a pretty sure sign with me, that we shall have it again before long; I never knew too much fine weather at this time of the year, and I dare say I shall not be *so lucky* as to be disappointed in my expectations now; indeed, I looked for rain before this, or I should have dragged down my fallow, as you have your's to-day; you know the song says, "sunshine 's succeeded by rain," and so, I am sure, it has always been with me through life, and so, I have no doubt, it will continue. If I want sun, it rains; and when I want rain, the sun will shine in spite of me—it 's enough to sour a crab—But here comes farmer Sykes—how do, neighbour?

Sykes.—Why, thank you, neighbour Grabb, well and happy. My friend here, and I, have worked down our fallow to-day, and I am now come to invite him to join me in a work of charity, in going over to the widow Williams, to-morrow morning, to assist her in this her time of need. But why didn't you drag your fallow to-day? it would have worked finely; I fear you will not be ready for sowing turnips, as this is only your first ploughing, you know.

Grabb.—I do know it, and was always sure I would be behind-hand; but you see, I thought we should have rain to-day, and was afraid to begin, lest I should be caught in the midst of the work: I wish now that I had done as you have, for nothing would give me more pleasure than to accompany you to-morrow—hang it, I think I will do so too.

Sykes.—No, you cannot, for you owe a duty to yourself and family, and until that is performed, you have no right to share in the "luxury of doing good." Charity begins at home, remember, and so you must drag down your fallow to-morrow. How

I enjoy those two verses which we sing every night before going to bed! the feeling is heavenly!

"Oh! sweeter than the fragrant flower
At evening's dewy close,
The will, united with the power,
To succour human woes!

And softer than the softest strain
Of music to the ear,
That placid joy we give and gain,
By gratitude sincere!"

Grabb.—Ah, times goes gaily with you! I'm sure I never feel in the humour to sing, either at night or morning — mine 's a very different *feeling*. I often says, I was born to be unfortunate, and I have no doubt on 't. God knows my heart; and as I says to my wife, here am I, with the best intentions in the world—but I must go, for I dare say I am wanted in twenty places at once by this time.

Sykes.—Yes, there is one that wants you, I know — that confounded old rooster of yours—there he stands, with his tail in the wind, crowing away like mad.

Grabb. — Does he, though? then I 'll be bound we shall have it to-night, after all, for he is pretty generally not far out in his reckoning—so, good bye.

To the Editor of the Farmers' Cabinet.

Naming Flowers.

Sir,—I had once the honour, while sojourning in a foreign country, to propose to a Horticultural Society the plan of naming their finest seedling flowers after the most beautiful ladies of the city and neighbourhood; the plan was adopted, and succeeded to *admiration*: and I must not forget that the first name which was given was that of a *married lady*, a Madame AMIRAUX — decidedly the most lovely woman in the town, to a geranium of superlative beauty and sweetness. Every one was eager to see Madame Amiraux; and the gentleman who raised it, a Mons. Oudinot — the brother to Buonaparte's favourite general of that name —was prevailed upon to cut the plant into five portions, the branches into three, the roots into two, for the purpose of propagating so beautiful a flower — each plant having been engaged at very high prices by five of the handsomest young men in the town: unfortunately, however, one only of these cuttings grew, so that the old story of killing the goose for the sake of her golden eggs, was near being renewed.

Now, would there, Mr. Editor, be any thing preposterous in the proposal, that those who engage in the cultivation of flowers here should name their new varieties after the beautiful and excellent amongst the female portion of this, the most beautiful country in the world; boasting too, as it justly does, of the most lovely women in creation? I think not, and I am decidedly of opinion that such a plan would be to add a *delicious fragrance* to their labours: and who knows, but that by such means, the end so long and arduously sought after might be at length accomplished — namely, to *give scent to the white camilla?* according to the spirit of the fine old song—

"I sent thee, love, a rosy wreath,
Not so much honouring thee,
As giving it a hope that there
It might not withered be.
But thou thereon didst only breathe,
And send'st it back to me,
Since which it smells so sweet, I vow,
Not of itself, but THEE!

FLEURS.

To the Editor of the Farmers' Cabinet.

Systems of Agriculture.

Sir,—The question has been asked, "how far can the European systems of agriculture be adopted with confidence in *this* country, so different in soil, climate, circumstances, and situation?"

And I take leave to answer, *confidently*, in the practice of the four essential points of good husbandry, without which, no system ought to succeed in *any* country, soil, circumstance, or situation.

1st. Rotation of crops. No two corn or grain crops ought ever, on any account, to follow each other; for, according to the old quaint adage,

"One crop for man and another for beast,
And your cattle and purse will be always increast."

2d. Cleaning of crops. Is it reasonable for any one to expect to reap a full crop from land, the strength and substance of which have been exhausted in the support of a *natural* crop of weeds, more than equal in quantity to the amount of its *artificial* crop? remembering that "the earth is *own mother* to the weeds, while she is only *mother-in-law* to the crops that are planted in her bosom."

3d. Manuring and top-dressing. Ought any one to "reap where he has not strawed?" It is but natural to expect that if a return is not made to the soil for the crops which it yields, its strength will soon be exhausted; according to another old adage, "always taking out of the meal tub, and never putting in, soon finds the bottom."

4th. Draining, where necessary, is of the first *necessity*; and this will be found of equal importance in every country under heaven; for, if the crop of natural herbage, growing on a wet or weepy sub-soil be examined, it will be found to be of a perfectly distinct species to that which is indigenous

to a dry and healthy soil; it will consist of aquatic plants, totally unfit for the support of land animals, engendering in their bodies all sorts of diseases, particularly the rot in sheep.

These are the four *cardinal points* in the science of agriculture—practise them honestly, and debit the land with the cost, keeping a faithful account of debtor and creditor, without fear for the result.

In these, there is neither uncertainty or speculation; for "while the earth remaineth, seed time and harvest shall never fail;" nor will the earth ever cease to repay the labour, such as above, which is bestowed upon it.

John Dugan.

Luzerne County, 22d May, 1840.

To the Editor of the Farmers' Cabinet.

Planting Forest Trees.

I have been for some time contemplating planting a field of some thirty acres with forest trees. The land is poor, and the soil light and sandy; yet its vicinity to the two great cities of New York and Philadelphia, has induced the hope of my being able to occupy it with such trees as would produce a crop at the end of, say ten years, sufficient to pay for interest, taxes, and fencing. The idea of planting chesnut trees was suggested, then locust or walnut; but having little knowledge of the time required for such trees to reach a productive size, I have concluded to ask the advice of yourself and correspondents. In England, and indeed throughout the continent, the business of planting forest trees is carried on to a vast extent. Millions are annually planted in England alone; and the Russian government is largely engaged in establishing and nursing up immense forests of timber, to be employed in future years for naval purposes. However remote the prospect of any cash return, yet it is very certain that forest planting produces a great annual profit. Will some of your friends communicate at what ages, respectively, the walnut, chesnut, English walnut, and hickory, produce fruit, and add at the same time any suggestions applicable to the object I have in view? Would in not be advisable to plant the large French chesnut, which is used in many parts of France as an article of food by the rural population, and which may frequently be seen for sale at the corners of our streets?

Y.

Philadelphia, April, 1840.

"That which makes us discontented with our condition, is the false and exaggerated estimate we are apt to form of the happiness of others."—*Fr.*

For the Farmers' Cabinet.

Simple Elements of Men's Agency.

Mr. Editor,—Labour produces its desired effects, only by conspiring with the laws of nature. There is no commodity or thing produced for consumption, which labour provides in any other way than by co-operating with the laws of nature. It is found that the agency of man can be traced to very simple elements. He can do no more than produce motion. He can *move* things towards one another, and he can *separate* them from one another: the properties of matter perform all the rest. He *moves* ignited iron to a portion of gunpowder, and an explosion takes place. He *moves* the seed to the ground, and vegetation commences. He *separates* the plant from the ground, and vegetation ceases. Why, or how, these effects take place, he is ignorant. He has only ascertained by experience, that if he performs such and such motions, such and such events will follow. In strictness of speech, it is matter itself which produces the effects. All that man can do is to place the objects of nature in a certain position.

Mills.

For the Farmers' Cabinet.

Slacking Lime and Churning Butter.

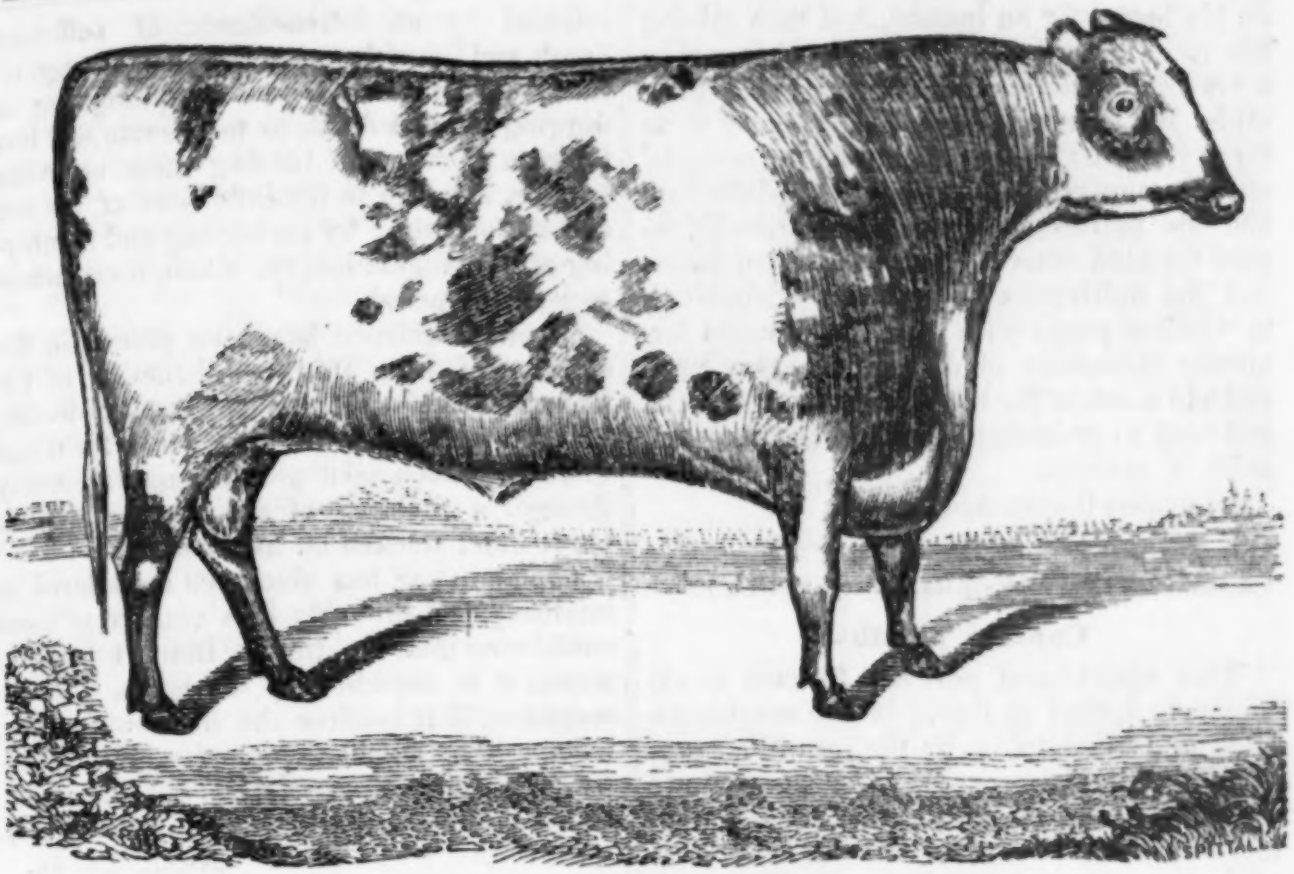
The reason of things should be found out.

Mr. Editor,—All bodies, on changing from a *fluid* to a *solid* state, give out heat; and when *solid* bodies become *liquid*, heat is absorbed.

The heat which is given out during the slacking of lime, escapes from the water, in consequence of its changing from a liquid to a solid form, by its union with the lime. The same effect is produced in making butter: when the cream changes from a fluid to a solid, a considerable degree of heat is produced. Hence the importance of turning the churn slowly when the butter is about forming, so that the heated air which is expanded in the churn may gradually escape by the vent, (which should be kept open at this period of the operation,) and not operate to soften and injure the butter in very warm weather.

Some butter-makers put a portion of cold water in the churn when the butter is forming, in order to lower the temperature, and to contract the effect of the heat, set at liberty at this juncture; but experienced dairymen say, that water should *never* be brought into contact with butter, either in the churn, or during the process of working out the buttermilk. It destroys its fine flavour, and reduces its standard of perfection. The buttermilk should be *thoroughly extracted* by working, and absorbed by the application of a cloth in which a spunge is inclosed, and *no water* used in the process.

O.



DUKE OF NORTHUMBERLAND,

BY BELVEDERE.

Calved 15th October, 1835. Bred by Thomas Bates, Esq.; and at ten months old, considered to weigh 40 stones, of 14 lbs. The four quarters without offal.

For the Farmers' Cabinet.

The right way to Settle Disputed Accounts.

"A soft answer turneth away wrath."

Mr. Editor, — The following was related many years since to the writer, by one of the parties, who was a very respectable citizen of Montgomery County, Pennsylvania, since deceased:

During the presidential term of Thomas Jefferson, two young men from Pennsylvania took a lease from him of his merchant mill, at Monticello, one of the stipulations of which was that the landlord should erect for their use, within a given period, a coopers' shop. The time for the meeting of Congress soon arriving, the President had to repair to Washington, to attend to his official duties, where he remained for a long time absorbed in material concerns, and the building of the coopers' shop was entirely forgotten by him; not so with his tenants, whose daily wants constantly reminded them of the provisions contained in the lease; and finally they determined to erect it themselves, and charge the cost of it to their landlord.

On the return of the President to his mansion, the parties met to settle a long account current, which had been running during his absence; the items were gone over and scrutinized one by one, and all were found satisfactory but that of the charge for building the coopers' shop, which he objected to, alleging that he could have erected it with his own workmen. Several attempts were made to effect a settlement, but they always failed when they came to the coopers' shop; the young men became warm and zealous in the affair, and the parties instead of getting nearer together, found themselves at every interview wider apart.

In this state of affairs, the father of the young men, who was a mild, affable, conciliating gentleman, possessing some knowledge of the world and its ways, arrived on a visit to his sons, who informed him of their difficulty with their landlord. He requested them to leave it to *him*, observing that he thought he could effect an amicable settlement of the case. This course was acceded to, and in due time he waited on the President with the account, which was scanned and agreed to, excepting the charge for building the shop, which he said with some firmness, that he should not allow for reasons stated. His opponent observing his apparent decision on the subject, very gravely remarked: "well, friend Jefferson, *it has always been my practice through life to yield, rather than to contend.*" Immediately on this remark being made, the President's chin fell

on his breast for an instant, and then raising his head in an erect posture, he observed in a very emphatic manner, "a very good principle, Mr. Shoemaker, and I can carry it as far as you can: let the account for the coopers' shop be allowed." Thus ended the difficulty, and the parties continued their friendly regard for each other till death separated them; and the cultivation of a similar disposition to "follow peace with all men," would terminate thousands of difficulties every year, and add much to the happiness of individuals, and tend to promote the general harmony and order of society. C.

Montgomery County, April, 1840.

Read before the Philadelphia Society, April 1, 1840.

Canada Thistle.

This agricultural pest has become so extensively spread on farms in the neighbourhood of Philadelphia, by the incautious use of Timothy seed procured from the northern part of the state of New York, that sufficient alarm is no doubt excited to call the attention of farmers to a more judicious selection of the seeds they propose sowing. Although much has already been written, and many modes have been suggested for the accomplishment of that purpose, yet, having had an opportunity of becoming acquainted with its habits, powers of propagation, and tenacity of life, it may not be improper to offer a few hints in addition to what has been proposed by others on that subject.

Canada Thistle propagates both from the seed and by the roots. The propagation by *seed* may be easily prevented by proper attention during the season for vegetation, in keeping the tops cut, so as to prevent them from perfecting seed; but to prevent the propagation by the root, and their destruction, is not, however, so readily accomplished. That part of the root to which the tops or stalk is immediately connected, about five or six inches in length, usually descends nearly perpendicularly into the earth, the whole of which appears to be annual, and consequently destroyed by every winter's frost. At the depth, however, of five or six inches below the surface the perpendicular root is attached to a perennial *horizontal root*, which frequently extends many feet in different directions, keeping about the same depth, which is furnished with numerous eyes or buds, each of which is capable of producing distinct shoots or tops, that will produce seed, and if cut into as many pieces as there are eyes, each will vegetate. A knowledge of the foregoing facts naturally leads to the following conclusion: that the propagation by the roots *can* be prevented, and their total destruction effected, by completely inclosing the spot infested by an intrenchment of sufficient depth and breadth to prevent the passage of the horizontal roots, and by ploughing or digging to such depth as to lacerate and tear them to pieces, and turning them up to the surface, exposed to the influences of the sun and atmosphere; by preventing and destroying all top vegetation, the whole must necessarily soon perish.

Much confidence has been placed in the efficacy of lime in the destruction of the Canada Thistle. It is to be feared, however, that it would not prove successful, for it has frequently been seen growing up vigorously through a covering of six inches of fresh burnt lime, slacked on the spot.

Common salt has also been considered as infallible, and probably it is entitled to more confidence than the lime. Being soluble in water, it is absorbed by the earth, and descends until it reaches the horizontal roots, where, if in sufficient quantity, it will destroy the germ of vegetation, not only of the Canada Thistle, but that of all other plants.

Agricola, Jr.

From the New England Palladium.

Early Rising.

'Tis sweet to rise at early morning's dawn,
And breathe the balmy air which passes by;
While glittering dew drops gem the grassy lawn,
In mimic radiance of an evening sky.

Beautiful morn! fair harbinger of sweets!
Ushered by orient beams and warbling songs;
Thy grateful light, the lark (shrill minstrel) greets,
And echo on the hills the theme prolongs.

'Tis sweet to hear the music, soft, and low,
Which morning zephyrs whisper to the trees;
'Tis sweet to see meandering streamlets flow,
Exhaling tribute to the early breeze.

Then the rapt soul throws off the thralling chain,
Which binds her soaring pinions down to earth;
And wings her mental flight to Heaven's domain,
And gives her native energies new birth.

Morning! there 's music in the heavenly name;
Then rise and greet her charms, and own her power
Rise, sons of ease! and catch the holy flame,
Which nature kindles at that glorious hour.

Rise, and behold the verdant, fertile plain
Inhale the fragrance of the morn's pure air:
Behold the bending vines, and golden grain,
And breathe to nature's God a grateful prayer.

In the choice of water, always select that which is softest; for hard water, as it is called, is always rendered so by its impurities. Any substance will soften and cook sooner, and with less fuel, in soft water, than when hard water is used; and the essence will be more quickly and thoroughly extracted by the former, than by the latter, as is observed in making tea or coffee.

For the Farmers' Cabinet.

Importance of Botanical Names.

As the language of botany is understood in every country, by all who are acquainted with the science, there is no difficulty in designating all the different kinds of seeds or plants, either at home or abroad, leaving no excuse for the vender in supplying a wrong article. The use of common or local names frequently leads to mistakes and blunders truly vexatious: for instance, the seed known in Boston as herd-grass, is called in Philadelphia timothy, and what goes under the name of herd-grass in Pennsylvania, is the red-top of the north; and as these seeds are very different in kind as well as price, a person may instruct his correspondent in either city to purchase for him, and find himself much disappointed in what he receives, although it may be known by that name at the place of purchase. Not many years since, a gentleman from the Eastward entered into a written contract with a merchant of Philadelphia, to furnish him with a large quantity of Pennsylvania herd-grass seed, (supposing he was to have timothy.) The order was accordingly executed, and shipped for Boston, when lo, on its arrival, it was discovered to be nothing but red-top! and was refused to be received as the article ordered. A suit at law was the consequence, when the Eastern gentleman had to abide by the written contract, and pay a large price for seed he did not want. If he had taken the precaution of adding the botanic name, (Phleum Pratense,) the vender would have been compelled to furnish timothy, the article desired.

The herd-grass of the middle states (Agrostic Vulgaris) is the red-top of the eastern states; and the herd-grass of the eastern states is the timothy (Phleum Pratense) of the middle states.

The blue grass of Kentucky, so called here by many, is not the Poa Cumpressa, or blue grass of botanists, which is wiry, and flat stemmed, but is the (Poa Pratensis) of Doctor Darlington and others. Having received a sack of the seed in the panicle, enabled me to determine this to satisfaction. It is our green grass. C. J.

To the Editor of the Farmers' Cabinet.

Analysis of Lime.

Sir, — I consider the article in your last number, "On the analysis of limestone," by Agricola, as far more valuable to the agricultural public than the cost of many years' subscription to the Farmers' Cabinet. I perfectly agree with the writer, that "every intelligent and observing farmer ought to be attentive to every circumstance connected with the use of so important and valuable an agent in agriculture as lime," and unite with him in impressing upon them the necessity of noting down in a journal, every thing relating to it, not trusting to memory even for a day. He remarks, that the difference of seasons, as regards heat and moisture; the time of year, and the manner of making the application to land; and the state of the soil to which it is applied, as well as the quantity, will conspire greatly to produce results somewhat differing; and that there might be, even yet, other circumstances not enumerated above, which may have an influence in producing different opinions in regard to the good to be derived from its application. Now all this is very well; but I, for one, must be permitted to believe that the fact, long since ascertained in other countries, that magnesian limestone is injurious to vegetation in proportion to the quantity of magnesia which it is found to contain, is as truly to be depended upon in this, as in any other country; and that under the same circumstances, it will be found to operate in the same way, and to the same extent. I say not this, however, to induce any one to take the thing for granted: by no means — experience keeps the best school; and when we can induce men to *prove* all things, there is no fear but they will hold on to that which is *good*.

But the question will be set to rest by the forth-coming table of analysis of limestones, which is promised in the report of the State Geologist for the present year, just published; and which, it is promised, will be made to embrace every section of the state: the geologist says, "It is believed, by the end of the autumn of 1841, that the chemical department of the survey will have made known the nature of every material of any value within the state, and shown its adaptation to useful purposes:" one of which, if not the *most valuable*, is, assuredly, lime, and its application to agricultural purposes. I confess, however, that my suspicions are strengthened, in a great degree, by a remark which I find at page 35 of the report, where it is said, "we here notice several varieties of the limestone, some belts of which are highly magnesian, and, *therefore*, well adapted for the manufacture of *hydraulic cement*. It is a matter of just surprise that we have hitherto had no manufacture of this valuable article any where in the southern limestone belts of this state, where the material is so abundant, and where outlets to market, procured at so vast an expense to the commonwealth, are numerous and convenient. Many chemical analyses already made, and others

now in progress in the laboratory of the survey, establish the fact, that *nearly all* the limestone belts in the south-eastern district of the state, including also those of the Kittaning valley, contain bands of magnesian limestone capable of furnishing an hydraulic cement, identical in properties with that so extensively manufactured in New York, and on the Potomac, near Shepherdstown."

Now, when it is recollected that magnesia requires nearly eight thousand times its weight of water to hold it in solution, would it not seem that its *unfitness* for the purposes of agriculture is in proportion to its *fitness* for that of forming an hydraulic cement "of great value?" Admitting, however, that the question of the *injurious* nature of magnesia to vegetation is not fully settled, yet, as no one has ever supposed it *valuable* on this account, the fact is most decisive and very striking, that in limestone containing 41 per cent. of magnesia, there is a clear loss of about one half in the quantity, when compared with that which yields 96 per cent. of carbonate, besides the cost of carriage of, to say the least, a valueless article—a monstrous difference, which one would suppose, will be sufficient to induce farmers in every part of the state to take the matter into their serious consideration.

In the Cabinet for April, there are no less than three instances recorded of the injurious effects of lime on vegetation, and these too, from the testimony of practical men of high standing and character—now, is it possible, that such discrepancy could arise from either the mode of using it, the season when it was applied, or even to the quantity per acre? I should rather believe it was owing to the impurity of the lime—the magnesia contained in its composition, and I will tell you why I so believe:—I have often seen lime from a neighbouring quarry, which I have remarked required a great length of time to slack; and although this lime has not been carried abroad until that operation had been completely effected, yet, wherever the heaps have been deposited and suffered to remain a while, all vegetation has ceased for the remainder of the season on these spots, although the greatest care imaginable had been taken to remove every particle of lime when carrying abroad: while the lime from another quarry, not a mile distant, but from the other side of the valley, obtained too at the same season of the year, and applied in the same quantity, and under the same circumstances, would be found to slack in a very short time, and on the removal of the heaps, although the same care to clear away every portion had not been observed, yet vegetation would be found immediately to go forward, and prove by its luxuriance that much benefit, instead of injury, had been derived from the application—nay, the herbage would spring up through the sides of the heaps of lime, some inches in thickness, while lying in process of slacking, and the cattle would prefer this herbage to that which grew by its side, without the aid of lime. And on mentioning this circumstance to an intelligent friend, he said, that he had applied this kind of lime to land before the process of slacking had been completely effected, and had observed lumps of it several inches in thickness, which had been spread abroad, and through which the oats had sprung up, to the height of about five feet, of the greatest luxuriance.

Now, on examination at those quarries and lime-kilns, I have found that the lime which was injurious in its application to land, would remain for a long time unslacked in the kiln, after the fire had been extinguished; while, in two days after the fire had gone out in the other kiln, the lime would begin to fall from the action of the atmosphere alone, and this difference is uniformly observable.* And another remarkable circumstance is, the limestone of the hard quarry is much the heaviest *before* calcination, but *afterwards* it is lighter than the lime obtained from the calcination of the stones of the soft quarry, which also yields a larger quantity of *slacked lime*, and this fact is known and acknowledged by every one in the neighbourhood. We learn from chemistry that magnesia, in the form of epsom salts, is chiefly procured from the mothers, or residuum, which is found after the separation of common salt from sea-water; and I remember hearing of a very decisive test of the poisonous quality of that ingredient:—a person, intending to build a house on a particular spot, in front of which, however, his neighbour had a row of fine trees, called upon him for permission to remove them, offering him whatever sum of money he would demand for the favour; this his neighbour positively refused, and was determined that the trees should not be removed *on any terms.* The person wishing the removal, then told him he must not wonder if God should resent such unneighbourly conduct, adding, "I should not wonder if they do not vegetate the next spring;" and lo, they never did! not a leaf ever put forth again! After some years, it was found that holes had been bored in the roots of each, and been filled with the magnesian water from a neighbouring salt work.

* It is peculiarly the case with the lime used for building in Philadelphia; it will remain for many days unslacked, and is proverbial for its value in building—it contains 41 per cent. of magnesia.

Now, how easy would it be to prove the cause of the difference between the limestones of the two quarries above-mentioned, and so nearly adjoining each other, had we the means of analyzing their composition! and would it not be worth while to urge upon the State Geologist to furnish us with these, before other branches of the survey are completed, if possible; how far this would be to trench upon his time and convenience I know not; but assuredly, the importance of such a step, if it can be taken, is almost incalculable to the agricultural interest of the state and the community. But until such analysis is made, I must be excused if I say, I believe the difference complained of is occasioned solely by the magnesia contained in the stone of the lime that has been found injurious to our friends; and that, for this reason, I shall from henceforth prefer to go to the kiln whose lime falls the easiest—the only criterion which I have at present from whence to form a judgment—for what I might require as a dressing to my land—a dressing which, from past experience, I judge to be of almost incalculable value to crops of every description, if judiciously applied, namely, on the grass lands exclusively, as a heavy dressing.

T. S.

Chester County, May 25, 1840.

For the Farmers' Cabinet.

Conducting Rods.

A disastrous fire, recently in our vicinity, occasioned by lightning, has caused much inquiry relative to the utility of conductors, and the best method of putting them up. The subject being one of great interest and importance to our citizens generally, and upon which there is a great diversity of opinion, I thought it would not be amiss to call the attention of some of the numerous and intelligent correspondents of the Cabinet to the subject, for the purpose of eliciting their opinions, observations, and *experience*, upon this interesting branch of science; and to request that we may be informed through the Cabinet, particularly, whether there have been instances of buildings being struck with lightning and destroyed, when guarded by conductors; and if so, how were they put up? what state were they in at the time? and the kind and quality of the points surmounting them? Also what distance above the building should the rod extend—what distance into the earth—how should it be buried, with earth or some other substance—what are the best kind of points—and how large should a building be to require more than one to protect it? or any other information that is calculated to throw light upon the question, and thereby oblige a number of inquirers.

PUBLICOLA.

Chester County, May 25, 1840.

Will our friend, Mr. Joshua Sharpless, of Downingtown, furnish a statement of his experience on this important subject.—*Ed.*

For the Farmers' Cabinet.

Read before the Agricultural Society, June 3, 1840.

Indian Corn.

Dear Sir,—I promised in my last letter to give you my opinion as to the best method of raising a profitable crop of corn, and from the observation of forty-five years, having been engaged in agricultural pursuits, I can truly say I believe the following to be the most certain of any other that I have known or heard of:

In the first place—the field designed for corn should be well *ploughed*, *harrowed*, and *rolled*, before it is marked out for planting. Now, this is but seldom done. The farmer thinks after the corn is planted, (and that usually in a careless and slovenly manner,) and when it appears above ground, it is then time enough to pulverize and make mellow the soil by ploughing and harrowing. But should you visit his garden, probably you might see the ground neatly prepared by the spade and rake, and made of the finest moulds; now, if this preparation is necessary for the seeds to be there deposited, surely it appears equally essential that the plants of the field should have a like attention bestowed on them. Besides, the corn is the largest of all our cultivated plants, and, of course, requires more space to be occupied by the roots. It is well known to every observing farmer, that wherever the ground is made fine and mellow, the roots will extend themselves many feet from the hill, and that to search out nourishment for the parent stock.

I, therefore, consider it highly essential towards raising a good crop of corn, or any other grain, that the ground should be thoroughly ploughed, harrowed, and rolled, and made mellow before the seed is deposited therein.

In the next place—as to the cultivation of the corn while growing. In my opinion, one of the most egregious mistakes which farmers usually commit when cultivating their crop is, *in ploughing and working among the corn during the heat of the day*. There can be no greater error than any stirring of the earth about the roots of the plants during the scorching rays of the sun; it

will cause them *to wilt*, and very much injure their growth. No skilful horticulturist will permit the hoe to be used in his garden during the intense heat of the day. This work should only be done early in the morning, and as the sun declines in the afternoon. So in the cultivation of corn, the labourers should enter the field at the dawn of day, and no work should be done to the plants after ten or half past ten o'clock; then man and beast should take their rest, until three or half after three o'clock, before they resume their work again.

In my opinion this is the true way to cultivate corn to the best advantage. In following this plan the corn will be seldom seen to wilt even in the driest season, but will continue increasing in growth.

An excellent old man whom I employed as the boss or foreman of my labourers when I first engaged in farming, and who had been in the employ of my father for many years, often upbraided the men for not getting to work as soon as he required, telling them that they must and should be in the field with their teams "by the time the stars went to bed," (this was his usual expression,) meaning by the peep of day. The labourers now-a-days most generally prefer waiting until the dew goes off the grass before they willingly turn out to work;—but the farmer who is really inclined to be a stirring man, should endeavour, if possible, to set his men to work in the morning as near as he can to the time "when the stars go to bed."

If what I have written may be of any benefit to the agricultural interest of our country, you are at liberty to communicate it.

R. G. J.

Salem, May 20, 1840.

For the Farmers' Cabinet.

Deep Ploughing.

Farmer W.—Well, say what you will, I am an advocate for deep ploughing.

D.—Ah, you speak comparatively, of course.

W.—No, I speak positively—there are times and seasons when I would go deep into the sub-soil, turning up inches of it in depth, if you please.

D.—And yet, I have often heard you laugh at the directions which we so often meet with in books for ploughing deep, without, as you observe, the writers being by possibility able to judge of the actual depth of the surface-staple of the soil, and when, for aught they know, three inches might be too deep; while again, as many feet in depth of other soils might be turned to advantage—now, how is this?

W.—I believe that all good farmers in this, and in every other country, will one day plough up every acre of their uncropped arable land before winter, as is the custom in every well-farmed district in England; for this system will apply to every country, be its climate and circumstances what they might. I know many large farms, where it is the custom to make the Christmas cheer to depend on the due and seasonable performance of this necessary part of their routine, and which if not fulfilled at that time, then there is no treat. Now, of that season of the year, and particularly in this country, where the soil has not generally been stirred to the necessary depth to sustain the crops in a dry season, I would recommend *very deep ploughing*, in large and straight furrows, and as unbroken as possible, turning up the sub-soil to a depth which, to an unpractised eye, would have the appearance of *dead ruin!* leaving open water-furrows, and well defined head-lands, so to lie until the season of spring tillage, for the purpose of being pulverized by the winter's frost and rain, which would be about as good as a covering of manure. In the spring, then, I would very carefully turn back these furrows, as unbroken as possible, to the place from whence they were taken; after which, the surface, in fine order for working, may be ploughed and properly cultivated for the reception of the seed, being extremely careful not to go so deep as to disturb the returned sub-soil, which will thus be in fine order to receive the tap-roots of the crop, having received a deep stirring and melioration from atmospheric exposure, of incalculable benefit to whatever crop might be planted on the land.

I conceive that the office of the tap-roots of plants is, to send up *moisture* from the sub-soil; and during the great heats of summer, I have no doubt a large portion of their support arises from this source; while their *lateral* roots are busily engaged in providing them *food*, by pushing their ramifications in all directions, like net-work in the surface-soil. It must not be understood, however, that I mean to apply this system to winter-ploughing, preparatory to oat-sowing in early spring, without another stirring—a capital plan, particularly on stiff soils—no, *there* it would be improper, of course—but if, after the exposure during the whole winter of this sterile and poisonous sub-soil, it be returned to the place from whence it came, and the after cultivation be confined to the surface only for the spring crop, I do not think it would be presuming too much, were we to expect an increase of crop, and lasting benefit, perhaps for many seasons, to a very great amount.

Now, I consider this plan far superior to

the stirring of the sub-soil by means of the grub-plough, which is now so much recommended: as, in this case, the sub-soil is not only loosened, but is absolutely enriched, by exposure during the whole winter to the frosts and snows and rains, while the still deeper and *untouched sub-soil* must imbibe much benefit by coming in contact with the rich surface-soil, and the decomposition of the herbage that might have been growing on it at the time of turning it down in the autumn—indeed, I have no doubt the benefit to be derived from such management would, in many cases, be equal to the rent of the land, and obtained, too, at the cost of a single extra ploughing. J. P.

For the Farmers' Cabinet.

Punctuality.

Mr. Editor,—I have received the two last numbers of the Cabinet, in due course of publication; such a degree of punctuality augurs well for the fulfilment of the engagements entered into by the Proprietors and Publishers of that work. We may now, therefore, expect to go on prosperously and profitably; and I hope to see the "Farmers' Cabinet" the acknowledged agricultural record of the State of Pennsylvania—a state whose central position renders it peculiarly well suited to become the bond of union between the Southern, Eastern, and Western territories of the country; for while our friends to the north and south have a difference of climate between them of about a month, that of Pennsylvania blends and assimilates with both; thus forming a natural medium or link of communication, fitting us peculiarly for holding friendly intercourse with each, and furnishing a means of interchange of sentiment, which must become of infinite service to all. With best wishes for the consummation of that hope,

I am, your Subscriber, J. D.

The Horse.

On Eastern plains—his native land—
Free, uncontrolled, he paws the sand;
His mane streams in the desert wind,
As faints the caravan behind;
And neighing at their hapless fate,
Flings out his heels in scornful hate;
Nor stops, till at some fountain's side
He cools his bright and reeking hide;
And thinks how better off is *he!*
Thus matchless in his liberty!

On meadows green, a fettered slave,
He still is proud, sagacious, brave;
By him the earth is tilled—the land
Yields generous crops at his command.
He leads the advance-guard of war;
Brings tidings from all lands afar;
Serves faithfully till life is past,
And drags *us* to the tomb at last!

To the Editor of the Farmers' Cabinet.

Sugar Beet.

Sir,—It is quite amusing to witness the numerous instructions that are given in almost every one of our agricultural works, on the simplest of all our operations, namely, the cultivation of the sugar beet. I believe that many of my plain friends have been deterred from growing that invaluable root, from seeing the very long and tiresome details, continued from week to week, and from month to month, in these books, the chief object of which must have been to furnish matter for the printer. Why, can any thing be more plain or less troublesome, than to make a small hole in the earth and drop in a seed? and when that seed grows, to select the strongest plant, if more than one vegetates, and keep it clean by hoeing? And yet, I have now before me one of our periodicals for the past month, in which an article on the subject is *concluded*—having been continued from a former number; and all this, after whole books have been written, and pamphlets published, for the space of the four last years, professing to teach what any practical farmer ought to know intuitively. This is after the Italian mode; they are the people to make a *science* out of a moonbeam, and to establish an institution, with its officers in regular gradation—a *college*, literally a college, for teaching the art and mystery of catching moles! We farmers are accused of a want of taste for reading; but really if we were to undertake to read all that has been written on such subjects, I am sure we should do nothing else. I am free to admit, that much benefit is to be derived from what is called book knowledge; but many of the *books* that are published do not contain the *knowledge* that is acceptable to a farmer of many years' experience. I grant, that many of us, *old ones*, are very far from the right way in which things ought to be fixed; and in none are we, in my opinion, so deficient, as in a proper rotation of crops; it begins to appear to me that in this point we almost all offend—perhaps I may say quite all—for I believe we all sow wheat after oats, giving our dung to our oat stubbles as a preparation for it, thus rendering our wheat seed-bed, which ought to be close and compact, light and porous, and fit only to force forward our crop so as to be in just a suitable state before winter to receive a blight, which, for aught we know, might show itself in the spring, in the shape of the Hessian fly, or the black rust, or the mildew, or any other of those numerous diseases to which our wheat crops are so liable.

Now, Mr. Editor, a few good *strong* ar-

ticles on subjects of such vital importance, would be worth all the books that have been written on those above-mentioned, and others like them; and I am mistaken if farmers would not be found to enter warmly into them, if they were given in a way so as to show that they were the production of one who knew and understood the business in which he was engaged.—Yes, I believe in my heart we are wrong in the article of rotation of crops, and perhaps in other *articles* also, and I, for one, shall be most willing to be set right, by any one who is competent to direct me; but the *writers* on the subject of the cultivation of the sugar beet, and such like simple matters, are my abhorrence.

Jno. Tigley.

May 31st, 1840.

To the Editor of the Farmers' Cabinet.

On the Roots of Plants.

Sir,—I find in a very interesting and scarce work on agriculture, the following remarks on the roots of plants; and although the work is an English publication, yet the principles which it teaches are not confined to any one country, soil, or set of circumstances, but are as applicable to this country as to any other; and I should therefore wish to see them re-published in the pages of the Cabinet, convinced that they will add much to our stock of information on that important subject. With best wishes for the success of your valuable work, I am, your

Constant Reader.

Delaware County.

"To give life and motion to the seeds of plants, a certain portion of water and of oxygen or vital air, and a degree of heat of about 50° Fahrenheit, is necessary. A seed being placed in the earth under these circumstances, it immediately absorbs moisture, and gradually swells to the extent of its shell or skin, when the radicle or first root protrudes itself, and in whatever position the seed be placed, assumes a perpendicular direction, and gradually makes its way *downwards* into the soil; and the germen also assumes a perpendicular position, and grows *upwards*. A great number of experiments have been made to ascertain the peculiar principles which influence and give direction to the first rudiments of plants; but whether the first inclinations of a plant be considered as *instinctive*, or whether, by the influence of any peculiar principle, the root is impelled forward into the earth, is of trifling importance to the practical agriculturist; and whether it may be accounted for on the principles of gravitation or attraction, it is not necessary to discuss.

As the branches of a tree are formed by a very tender and succulent point pushing upwards into the air, so the root penetrates downwards into the earth; but as it has to make its way through the pores, or between the particles composing the soil it is planted in, which is often close and tenacious, its first projecting points are wisely adapted to the purpose, by being much more minute and compliable, which enables it to advance almost as readily as water. After a root has effected a passage, it is endowed with considerable expansive and repulsive powers, and is thereby enabled to make its way by pushing off on all sides the encumbering soil. When the soil is but partially submissive, the root accommodates itself to the cavity, admitting its increase, however rugged and irregular. Roots are, notwithstanding, impatient of resistance, and at all times evince a partiality for that soil which is most accommodating, and run most evenly and luxuriantly where they meet with the least resistance and the greatest supply of nutriment.

The office of the root is to collect and supply the food which forms and determines the future plant and its produce, and the constitution and habits of the roots determine those of the stalk, branches and leaves; and if the roots grow luxuriantly, the branches will do so likewise.

A variety of means have been resorted to by phytologists to discover and ascertain the construction and principles of action of the roots of plants, and as various and contradictory have been their opinions and representations; but in the material point, all agree: and the most minute examination by the most powerful microscope confirms the fact, that the food of plants can only be taken up by the roots in a state of solution in water, or suspended in a state of division, so minute as to be equal to a solution.

In a deep tenacious soil or clay, roots can only find a free passage through fissures or clefts, which are formed by its occasional contraction; and as these openings are not very numerous or close together, the roots do not divide much, or become fibrous; but those which strike into them, range wide and deep, and getting beyond the general influence of the sun and air, collect their food or sap from a source ill adapted to fructification; and consequently, plants under such circumstances, are generally found to be of a cold, aqueous, unhealthy and unprolific nature: while on the contrary, when a soil is light, porous and shallow, the roots, meeting no obstruction, divide and form a great number of fibres, which, ranging horizontally, and being more exposed to the effect of sun

and air, incline a plant more to become fructiferous than to an increase of wood, or an extension of branches; and in such a situation, the greatest supply of food being appropriated to the production of fruit or seed, the plants grow less to stalk, branches, and leaf.

Hence, it is very truly remarked by an ingenious writer on fruit trees, that they produce the most generous fruits when their roots spread near the surface of the earth: and whether we consider such effects to be produced by the roots being kept more within the influence of the sun and air, or *by the peculiar nature of the food* supplied by the soil in such a situation, it operates in support of one and the same conclusion, namely, *that it is necessary the roots should be kept near the surface*; for whether that which supplies the food of plants be a red, a black, or a brown loam, or sand, or clay, the proper quality of food, or habit in the plant to induce fructification and produce the most perfect seed and fruit, in the most abundant quantity, can only be furnished *within a certain depth.*

Thus, the roots having collected and absorbed, or taken in a supply of food or nutriment for the sustenance of the plant, the next object for consideration will be, how, or in what manner, or by what means, such food is disposed of, and appropriated to the uses of plants, and to the formation of its various substances?—an inquiry of the greatest importance, and is determined by the leaves, stalk, and branches."

Long Manures.

The knowledge of some general principle is necessary, to enable the farmer to prosecute, with success, some of the most important branches of his business. The correctness of this remark is demonstrated, in the successful application of the different kinds of manures. It is well known they cannot communicate nourishment to the plant, without going into a state of solution, for which water is the agent. So far as the food of plants is supplied by the soil, it appears very certain that it is imbibed by the extremities of the roots only. For it has been discovered that the portion of the soil which is soonest exhausted, is precisely that part in which the greatest number of the extremities of the roots lie. If those extremities are cut off, the root increases no more in length; but the sides send off fibres which perform the functions of roots and imbibe food by their extremities. It appears, then, that the nourishment derived from manure, must first be dissolved by the moisture of the soil, and afterwards come in contact with these extremities, to assist the growth of the plant. Hence the application of undecayed vegetable manure, as straw, cornstalks, &c. spread and mixed with the soil as effectually as is practicable with the plough or harrow, will contribute much less to the value of a crop than many suppose. The following account, by a distinguished author, developes facts relating to this subject, which may be of much practical utility:—It appears, says he, from the experiments of Mr. Hassenfrats, that substances employed as manures produce effects in times proportioned to their degree of putrefaction; those substances most putrid producing the most speedy effect, and of course, soonest losing their efficacy. Having manured two pieces of the same kind of soil, the one with a mixture of dung and straw highly putrefied, the other with the same mixture newly made, and the straw almost fresh, he observed, that during the first year, the plants which grew on the land manured with the putrefied dung, produced a much better crop than the other; but the second year, (no new dung being added) the ground which had been manured with the unputrefied dung, produced the best crop. The same thing took place the third year, after which both seemed equally exhausted.—*Genessee Farmer.*

For the Farmers' Cabinet.

Lime.

Mr. Editor,—I have just done *kivering* my corn, as we old field Marylanders say; and now that I have time to lay down the hoe, I hope you will allow me to break a lance with your correspondent, Mr. S. Kirkbridge—whether a real or fictitious name I know not, nor is it material. I observe that he has made an attack upon the report of our State Geologist, (see April number of the Cabinet, page 275.) I am not about to defend the author of that report, he is able to defend himself when necessary to do so—all that interests me in the comments of your correspondent upon that report is this:—I fear that what he has said in opposition to the use of lime (coming, as it does, from a Pennsylvanian) may have a pernicious effect upon the minds of some of my timid neighbours, who have but just commenced reclaiming their worn-out land by the use of that article. I have had some little experience myself in the use of it, and I have no doubt as to the great benefit that will result to this section of country from its application, even to the extent recommended by Mr. Ducatel, any thing your Morrisville correspondent may have said to the contrary, notwithstanding.

I have seen it applied at the rate of from sixty-five to one hundred and twenty bushels per acre, upon land entirely worn out by our

old-fashioned mode of cropping, and the effect has been to increase the value of the land in three years *five hundred per cent.* The Cabinet is taken, and read with much attention by some of the farmers in this neighbourhood, and any thing that may be found in its pages against the use of lime, emanating from practical farmers in the neighbourhood of Philadelphia, would unquestionably have much weight with the farmers here; but, judging from what I saw when travelling through a part of Pennsylvania a few years ago, I am induced to think that the use of lime is not held in as high estimation in Bucks county (Morrisville I think is in Bucks county) as it is in some of the neighbouring counties. I recollect when travelling through a part of Philadelphia county, with a farmer of that county who had used lime to a great extent upon his farm — and I think I never saw a farm more highly improved; but, to my utter astonishment, in the course of our ride through this highly cultivated region, we suddenly came upon an *old sedge field!* how is this, said I, how came one of my countrymen here? "Oh," said my fellow traveller, "don't be alarmed, we are in *Bucks county* now, we passed the line about half a mile back."

An Old Field Marylander.

April 30, 1840.

Avarice.

The reader may remember the dreadful famine which I left hanging over Egypt. Emin, on this occasion, was one of the provident, for during the years of plenty he had laid by for those of want; but, like the ant, he cared not to share his savings with the idle; and although his granaries groaned under their loads of grain, he saw, unmoved, the thousands of wretches who every day perished with hunger under their very walls; and when the bodies of the sufferers choked up the very entrances to his storehouses, he still refused to unbar their surly gates, until the grain had reached the exorbitant price fixed by his avarice. This it at last attained; and now, exulting at the thoughts of the millions he should make in a few hours, Emin took his keys and opened his vaults! But oh, horror! oh dismay! instead of the mountains of golden wheat he had accumulated, he only beheld heaps of nauseous rottenness! an avenging worm had penetrated into the abodes fortified against famished man! a grub had fattened upon the food withheld from the starving wretch! and while the clamour of despair resounded *without*, a loathsome insect *within* had in silence achieved the work of justice; it had wrought Emin's punishment in darkness, while his crimes shone in the light of heaven! At the dire spectacle, he uttered not a word —he only for a few moments contemplated the infected mass with the fixed eye of despair, then fell flat on his face upon the putrid heap—God had smitten him! On raising his prostrate body, life had fled, and like his corn, his frame was become a mass of corruption.

Memoirs of a Greek.

To the Editor of the Farmers' Cabinet.

Fly-proof Wheat.

Sir,—At page 60 of the Cabinet for September last, there is a very particular account of a crop of Mediterranean wheat, which escaped the ravages of the fly, and yielded at harvest forty-one bushels per acre, millers' weight. It was found to be a hardier winter plant than the red chaff bearded wheat which grew by its side, of more rapid growth, and was harvested a week earlier.

Now, on a late visit to Chester county, where the ravages of the fly are tremendous the present year, I saw many instances of the most perfect security exhibited in this peculiar species of wheat, although it had been sown in the same fields, and by the side of the other varieties common to the country, which have been totally destroyed by this scourge. I also noticed that the Mediterranean wheat is uniformly more early in coming into ear, and promises a harvest ten days earlier than any other wheat crop in the country; and in no instance did I witness the difference greater or more strikingly defined, than in a field of wheat belonging to Dr. Darlington, of West Chester, where a portion only is of the Mediterranean species, the remainder being of another variety. Would Dr. Darlington oblige us by endorsing the truth of this statement; and would others who have had experience of the value of this fly-proof wheat, add their testimony thereunto?

R. W.

June 4, 1840.

And will our correspondent, J. Jenkins, of West Whiteland, oblige us with an account of his wheat crop of the present season; it was his intention to seed entirely with the Mediterranean species—did he do so?—*Editor.*

It is one of the first maxims in farming to begin by removing all weeds, before any attempts are made to mend the soil; otherwise, manure, instead of being advantageous, only serves to multiply those spongy plants which suck all nourishment from the crop.

Weeds.

If our young friend "Weed Puller" will come down doggedly to the task of pulling weeds and reading the "Cabinet," we have no doubt he will soon acquire the knowledge of which he is in pursuit: he has chosen the better part which cannot be taken away, and in due time he will reap the fruit of his labours, if he faint not.

In the mean while, we would take leave to recommend to him the mode practised by the best agriculturists in England, a mode as applicable in this as in any other country, and of importance in proportion to the quantity of weeds to be eradicated — far greater here than in any country which we have before seen, the soil and climate conspiring together to perfect a growth of three or four years in the space of one. It is this: when no crop is on the land, *to plough for weeds*, and to do all in his power to exhaust the land of them before sowing his crops, not leaving this indispensable labour to be performed after the crops are grown, when they will often be found to interfere with the free use of the plough. To this end let him determine, religiously, to turn up every acre of land so soon as the crop is removed, especially immediately after harvest, turning the soil to a depth rather greater than the surface-staple; laying it well up and over, by means of very narrow furrows, so that the sod or weeds, as may be, might be brought into close contact with the bottom of the furrow, and so fermentation might be engendered and decomposition be brought about, the beneficial effects of which will be very apparent in the spring-course of crops; which will be found more easy of cultivation in consequence of such autumnal ploughing. The only cure for the train of "nuisances" which he enumerates, is deep and effectual cultivation; there is no royal road to agriculture, any more than to geometry, but the common road is plain and very agreeable to travel: it is only to pursue it to the end, and no one ever yet was beaten in a race against the weeds, if they are attacked in the right way. Some are to be overcome by the grubbing-axe only, but in general the plough and the hoe are sufficient, if they are put into requisition early.

On the subject of autumnal ploughing, we received a lesson where we least expected it. On a late visit to one of the adjoining counties, we fell into conversation with a farmer, who was hoe-harrowing his corn amongst clods and half-decomposed turf, that were a caution to look upon; and when we told him, if we could grow corn in England — which we admitted we could not, in consequence of the coldness and moisture of the climate — that we should do so with less than half the labour than what he was bestowing, by ploughing the land before winter in small and deep furrows, for the purpose of decomposing the sod, and facilitating the spring working, he observed, he did not think there would be much advantage to be derived from that; "to be sure," said he, "you would get rid of the cut-worm in the spring, *but that is all.*" On inquiring if that would assuredly be the fact, he did not hesitate to declare it would be so, "but that would be all." Now, many of his neighbours were re-planting their corn for the third time, in consequence of the destruction occasioned by the cut-worm, and he himself must have suffered as much, and yet he considered the value of an autumnal ploughing to be almost worthless!

In this visit, we were struck with astonishment to see how little *regard* was paid to the growth of thistles, mullen, and other large and very pernicious weeds around the dwellings, orchards and gardens, adjoining the high road, which will soon be in a condition to repay their owners ten thousand-fold for their leniency; and we were reminded of a country in Europe, where there is a law to permit any one to go on his neighbour's premises, for the purpose of cutting up the weeds, to prevent them from shedding their seeds, the owners of these being compelled to defray the expense! Any large weeds may be destroyed by cutting just below the ground, and filling the hollow thus made with salt; if this is done during the time of their vigorous growth and before they blossom, the salt is then taken up into circulation, and the returning sap-vessels carry the poison to the extent of the root to any depth. Flowering buds, or seeds, have no returning sap-vessels, and this is the cause why no crops exhaust the soil in any sensible degree, until they begin to flower and to perfect their seeds. We assure "Weed Puller," nothing is easier than to extirpate weeds, if they are taken by the right end.—Ed.

Every man may read in his own breast what he ought to do, or to avoid, under all circumstances; all that is required, when our interest happens to be in opposition to that of another is, to inquire *within*, how *we* should wish to be treated in a similar situation, and to *listen*, during the course of this proceeding, whether our heart is tranquil and satisfied.

Experiment and calculation are the grand basis of *true agricultural science*, a science of which the dawn at present manifests itself, and of which the perfect day will ultimately illumine our posterity.

For the Farmers' Cabinet.

Anecdote—Recovery of a Stolen Horse.

Many years since, a gentleman residing in Maryland had a very fine and valuable horse stolen from his stable; he advertised and sought for him in vain, but could hear nothing of him, About a year afterwards, being on business in the city of Philadelphia, he saw a person riding the stolen horse in the street; he followed him to a tavern, where the horse was put into a stable by the hostler. The gentleman being at a loss how to proceed to recover his property, inquired for a lawyer, to whom he might resort for legal advice. He was referred to John Ross, an attorney of considerable celebrity, to whose office he repaired in great haste, being fearful that the horse might be removed before he could take possession of him. Mr. Ross was out, but, nothing daunted, he communicated his business to a *black servant* who was in waiting. The black man with great coolness and composure told him, that he thought he could give him the desired information; and immediately took down from the case a large book, and began to turn over the leaves; and, finally, after an apparent deliberate examination of the case, (for it afterwards appeared that he was unable to read a word,) he stated, that my lord Coke says, "a man may take his horse wherever he can find him." The gentleman inquired the fee, was told half a joe, paid it down, and was off in an instant to the stable, claimed, and took possession of the horse without obstruction, for the person who brought him there was glad to be permitted to depart without molestation. Being much pleased with his success under his legal adviser, he returned to the lawyer's office to make report of it; by this time the principal was in, and he informed him of his case, and of his previous call, the valuable legal assistance he had received, and of its efficacy in procuring the restoration of his long-lost favourite horse. After he had left the office, Pompey was called in and questioned; he pleaded guilty to the whole as stated; when his master asked him what fee he had received, he said a half joe; "well," says the master, "give me one half of it." This was instantly done, and so the case ended. The owner getting his horse; and the lawyer and his servant each receiving four dollars. O.

How easy is it for a man to be happy, if he seeks only to procure true content in the fulfilment of his duty, instead of following after the phantoms of happiness and grandeur, which he never ceases to present to himself!

Domestic Economy.

Potash and soda are the two common and abundant alkalies used in every family every day. The first in the form of soap, pearl-ash, sal-æratus, quick-ley, saltpetre, &c. The other in the form of common salt, (muriate of soda,) and sometimes in other combinations.

Lime and magnesia are called alkaline earths: the former is frequently put with ashes in leach tubs, where it absorbs the carbonic acid combined with the ashes or potash, and by that means gives it greater power in acting on the grease or oily matter used for the soap. It is more effectual than red-hot horse-shoes in keeping witches from the soap; and is more certain than either the new or full moon, in gratifying industrious housewives with "good luck" in this branch of domestic economy.

Acids and alkalies neutralize each other. Consequently, if an accident occurs from vinegar, sulphuric acid, (oil of vitriol,) nitric acid, (aqua fortis,) muriatic acid, (spirit of salt,) or any other acid, apply potash, soda, ammonia, quick-lime, magnesia, or some alkali, or alkaline earth.

If an accident occurs from an alkali, apply vinegar, or a weak solution of some of the stronger acids.

By a knowledge of the properties and the relations of the two classes of substances constantly used by house-keepers, stains on garments can frequently be removed or prevented, cooking improved, and frequently life saved.

Oxygen is the vital portion of the atmosphere, and the agent which supports respiration, sustains combustion, produces rust on metals, changes the juice of the apple, first into sugar, then alcohol, then vinegar, and finally putrefaction; causes light and sour bread; darkens the shade of certain colours, and destroys others, and produces some influence on every thing at all times.—*Genesee Farmer.*

By the constant exercise of a farmer's life, the circulation of the blood becomes more free, from the fluidity being greater; whilst meditation requires a more sedentary and tranquil life, which thickens the blood, and occasions a languid pulse.

Something is due to the climate and to the natural soil of the islands of Great Britain and Ireland, that their agricultural productions are better than ours; but more is due to the better preparation, the higher manuring, the *more perfect ploughing*, and the generally greater pains taken there in the cultivation of the earth.

To the Editor of the Farmers' Cabinet.

English Bean.

Sir,—I find mention made in some of the agricultural papers, of the English field or horse-bean;—Mr. Webster has noticed it also in one of his addresses, as a valuable crop; and others have given their opinions that it might one day become a staple article of field culture in this country. I have grown largely of this crop, and from what I have observed, I do not believe that it can be cultivated here to any good purpose, as it delights only in stiff and naturally cold soils, which, after high cultivation however, produces and supports very large crops of this plant; and the careful hoeing and cleaning which it always obtains, fits the land for the finest seed bed for wheat, imaginable.

In the wealds, or clays of Essex and Kent, it forms a very large portion of their routine or course of crops; and the yield is sometimes very great, but upon the whole, it is an uncertain crop, being liable to a blight while in bloom, which will at once deprive it of half its yield, and often more. I have known the crop to grow to the height of six feet, and be covered on both sides the stalk with the finest pods; while I have seen thousands of acres not more than eighteen inches in height, with not a pod scarcely in a yard. The yield depends much on the state of the atmosphere, and the plants love moisture, and a cool heavy soil, two things that this country—I am now speaking of the latitude of Pennsylvania—does not naturally supply. It is a very valuable crop when free from blight; I was accustomed to cut it up for chaff for hard working horses without thrashing the stalks, when cut very small, yielding a most hearty and palatable food, especially when mixed with the bean in pod; and with them too, I have cut oats in the straws; this mixture was the best and cheapest food I ever used, excellent as an accompaniment with turnips or beets for cows and sheep in the winter.

The horse-bean requires very early planting in drills in the spring, on a stiff and well manured soil, and after the most careful culture, with two hoeings, does not always pay the cost. It is always late in harvesting; I have often known the crop, after being cut in the field, covered with a foot or more in thickness with snow; and once in particular, I remember seeing the last of a crop of them carried to the barn on the 24th day of December—the day before Christmas day;—they are not apt, however, to be injured by exposure.

I believe the idea entertained in this country, that the horse-bean is a particularly exhausting crop, is erroneous; its large and woody tap-root is supposed in England to draw its principal nourishment from the subsoil, leaving the surface in a degree unexhausted, and in a fine pulverized state, arising from repeated hoeings and cleanings, a capital seed-bed for wheat.

Here is an extract from Boys' Survey of Kent (England), on the alternate crops of beans, with which—as practised in the Island of Shepey—Mr. Boys cultivates the fine farm of Betstoanger, consisting of thirteen hundred acres of stiff land.

"The general rotation here is, beans, wheat, alternately: and when the land gets foul, or *the farmer thinks it wants rest*, he substitutes a fallow for the bean crop, but which is not oftener than once in six or eight years. The land is ploughed in the winter for beans, which are planted as early as possible in the spring, in rows about twenty inches asunder, and the crop is well horse and hand hoed. They are harvested as in other places, and the stubble, *ploughed only once*, is sown with wheat as early as the beans are removed. The wheat which is thus produced, is the best which goes to the London market, and frequently weighs 64 lb. per Winchester bushel; and from its early harvest, is of a fine bright colour, the bean being remarkably thin. The beans are also a first-rate sample, and both are large crops, when the land is kept clean and in good order."

Judging from the above, it is not believed that the English horse-bean is a crop that will ever be adapted to this country and climate.

JOHN KENNET.

May 24th, 1840.

Age of Sheep.

The age of a sheep may be known by examining the front teeth. They are eight in number, and appear during the first year, all of a small size. In the second year, the two middle ones fall out, and their place is supplied by two new teeth, which are easily distinguished by being of a larger size. In the third year, two other small teeth, one from each side, drop out and are replaced by two large ones; so that there are now four large teeth in the middle, and two pointed ones on each side. In the fourth year, the large teeth are six in number, and only two small ones remain, one at each end of the range. In the fifth year the remaining small teeth are lost, and the whole front teeth are large. In the sixth year, the whole begin to be worn; and in the seventh, sometimes sooner, some fall out or are broken.

Praise large farms, but cultivate small ones.

Seed Wheat.

At a meeting of the Philadelphia Agricultural Society, on the first day of May, Mons. Vilmorin, one of the most extensive seed dealers in Paris, presented to the society, by the hands of Mr. John Vaughan, twenty-two parcels of different varieties of wheat for trial: they are the produce of different countries and climates, one of them from Odessa. They are deposited with the Editor of the Farmers' Cabinet for distribution amongst farmers, under the condition that they will give an account to the society of experiments made with them.

Irrigation.

Upon the borders of Sherwood Forest, (England,) are the water meadows of which he was speaking; a little river ran through the forest in this part, at the bottom of the valley, with sides moderately sloping, and of considerable extent, between the river at the bottom, and the common level of the surrounding country above. This little river, before reaching the place, ran through a small town, and gathered, doubtless, some refuse matter in its course. From this river the water was taken, at the upper end of the valley, conducted along the edge or bank, in a canal or carrier, and from thence, at proper times, it was suffered to flow out very gently, spreading over and irrigating the whole surface, trickling and shining when he saw it (November) amongst the light green of the new-springing grass, and collected below into another channel, from which it was again let out to flow, in like manner, over land lying still further down towards the bottom of the valley. Ten years ago, this land, for production, was worth little or nothing; he was told that some of it had been let for no more than twenty-five cents per acre: it has never been manured, and is yet now most extensively productive. It is not flooded; the water does not stand upon it, it merely flows gently over it, and is applied several times in a year to each part—in March, May, July, and October. In November, when he saw it, the farmers were taking off the third crop of hay cut this season, and that crop was certainly not less than two tons to the acre. This last crop is generally used as green food for cattle: when he spoke of tons, he meant tons of dried hay. After this crop was off, sheep were to be put upon it, to have lambs at Christmas, so as to come into market in March, when they command a high price: and upon taking off the sheep in March, the land would be watered, the process lasting from two to eight or ten days, according to circumstances, and repeated after taking off every successive crop. Now, although this water has, no doubt, considerable sediment in it, yet the general fact shows how important water is to the growth of plants, and how far, even, it may supply the place of other sources of sustenance.—*Webster's Speech.*

It is a fact, however, that the grasses growing on those watered meadows are quite of a different species from those indigenous to a dry sand upland soil; and this accounts for the numerous crops which they yield—the herbage is peculiarly coarse and long. Thousands of acres of the most productive water meadows, could be formed, comparatively at little expense, in many parts of our country.—*Ed.*

To the Editor of the Farmers' Cabinet.

Tare.

Sir,—In the "American Farmer" for the present week, there is honourable mention of the English tare, the most valuable crop that can be cultivated on a farm for summer soiling; but as it is evidently written by one who has not had the means of an intimate acquaintance with it, it is not wonderful that there are some inconsistencies in the account; the writer, however, deserves all praise for bringing it into notice, and it only remains to be put to the test of experience, when its superlative value for soiling all kinds of cattle will be made manifest.

The writer observes, "there is no hindrance in our climate to its cultivation," and yet he adds, "it is doubtful whether tares sown in the fall or autumn would survive our winters." He also says, "tares are of two kinds, winter and spring, but not distinguishable from the appearance of the seed." Now, every one acquainted with the subject knows, that there is a very marked difference in the appearance of the seed of the winter and summer tares, the first being round, small, and black; the latter much larger, flatter, and light coloured; and it is very generally believed, in the tare-cultivating districts, that the winter variety will not produce large crops if sown in the spring; nor will those of the summer variety, if sown in the autumn, even should they survive the winter; and I have been led to make the same remark.

Professor Low observes, very justly, "it is one of the most esteemed crops of England, when used as green forage; they are cut for this purpose after the pods are formed, but long before the seed is ripe;" but he is very wrong when he adds, "being in the class of crops not allowed to *mature their seeds*,

they are not exhausting to the soil;" for it is well known that *all crops* begin to exhaust the soil when they begin to bloom, as the blossom is not furnished with any return sap-vessels: the custom of cutting as soon as they begin to blossom, however, obviates very much this objection. In the sheep-breeding countries, it is customary to feed off the tares by folding them with sheep by means of trundles, and if this is commenced early in the season, a second growth takes place, which gives an additional crop of great luxuriance. This is not, however, a mode of management to be recommended, for another important use of the tare culture is, to do away with the necessity of naked summer fallowing; and to this end they should be sown as early after harvest, on those lands designed for the wheat crop the next autumn, as possible: and if they are mown off and given to the cattle as soon as they are fully grown, and the land ploughed up as they are cleared, there will be sufficient time to give it a thorough cleaning before the time of wheat sowing, a preparation for that crop superior to almost every other, especially if the land has been manured for the tares, which it should always be, if possible, as it enables the crop to overcome the weeds, and to add exceedingly to the *size of the dunghill;* and it is remarked, that wheat after tares that have been manured for, is not liable to be affected by rust.

By the turnip and tare culture it is, that the system of naked fallowing is entirely done away in England. The turnips on light lands, the tares on heavy soils, each furnishing sufficient opportunity to clean the land thoroughly, before sowing barley after turnips, or wheat after tares. Arthur Young's observation, "that not a tenth of the stock could be maintained without them," is nothing but the truth; and they will fatten horses, cattle, sheep, and hogs, without any other food, especially if they are allowed to perfect their seed—by which, however, is not meant to ripen it.

Tares produce more green food than the best meadows, and the land may be cleared of them in June, time enough for a crop of turnips, or even potatoes, or of being prepared for wheat. They will fatten all kinds of cattle, suit every soil and climate, and on good soils will produce twelve tons of green food per acre. Winter tares are sown from the middle of August, to the middle of October, two bushels or two bushels and a half per acre. Spring tares may be sown from March to midsummer.

They begin to blossom in May, when they should be mown and taken to the cattle in the stables until they pod, when the remainder should be made into hay; whilst making into hay, they require a good deal of sun; rain is very injurious. If all the farmer's stock is kept upon them while green, they are taken off the grass land, consequently, there will be more grass to make into hay; and they should be sufficiently plentiful to keep the cattle on them until after hay-making, when they might go into the mown meadows. Good land, well manured, will yield ten tons green per acre, which will make three tons of the best hay on the farm. If preserved for seed, they have been known to yield forty bushels per acre, and sell from one dollar to seven dollars per bushel, according to the seasons. They are of such infinite importance for summer soiling, that Mr. Davis, of Beddingham, England, says, he could not maintain one-tenth part of the stock he does without them. This plant maintains more stock at that season of the year than any other whatever. Upon one acre of tares he can maintain four horses, in much better condition than upon five acres of grass; upon eight acres he has kept twelve horses and five cows for three months—June, July, and August, and no other food given them. Cows give more butter while feeding on them than on any other food."

I have sown crops of tares in succession during the spring and summer; the last sowing, on the 21st day of June, proving a heavy and most valuable crop for soiling working horses on a rail-road until the month of September—these were raised upon land which had been cleared of turnips in the spring and early summer, and which was sown upon the same by the 29th day of September.

JAMES BEYNON.

May 15, 1840.

Maternal Affection.

A mother's love is synonymous with immortality. Other affections may be overcome, other feelings may be seared by apathy, or frozen by neglect, but this yields not to the power of change: it lives on, unconsumed by time, and uncongealed by the breath of forgetfulness. Whether the tear which rises from its fount sparkle in the beams of prosperity, or glisten like the dew-drop of winter on the withered remnants of the summer's pride, it is alike pure—alike the overflowing of a feeling which cannot die, and cannot be overcome.

A farmer can seldom do better, when moving into a new situation, than observe the practice of his most successful neighbours, especially if he is obliged to employ labourers obtained upon the spot; it will be easy afterwards gradually to resort to his own ideas.

For the Farmers' Cabinet.

Premiums for Crops.

At a meeting of the Philadelphia Agricultural Society, held June 3, 1840, the following premiums for crops were fixed and determined; and directed to be published in the Farmers' Cabinet.

For the best field of Indian-corn, not less than five acres	$ 10
For the second best	$ 5
For the best crop of spring wheat, not less than two acres	$ 10
For the second best	$ 5
For the best crop of potatoes, not less than two acres	$ 10
For the second best	$ 5
For the best crop of sugar beet, not less than one acre	$ 10
For the second best	$ 5
For the best crop of mangel wurzel, not less than one acre	$ 10
For the second best	$ 5
For the best crop of ruta baga, not less than half an acre	$ 10
For the second best	$ 5
For the best crop of field carrots, not less than a quarter of an acre	$ 10
For the second best	$ 5
For the best crop of sugar parsnips, not less than a quarter of an acre	$ 10
For the second best	$ 5

Competitors will be required to notify the committee at least one month previous to housing their crops; and each competitor must furnish the committee with a written account of the manner of cultivation, kind and quality of manure, character and kind of soil, as nearly as practicable, and expense of labour bestowed on each crop; they must also furnish satisfactory evidence of the quantity produced per acre.

GEORGE W. ROBERTS,
ROBERT T. POTTS,
JAMES THORNTON,
ISAAC NEWTON,
ISAAC W. ROBERTS,
DR. GEORGE UHLER,
Committee on Crops.

For the Farmers' Cabinet.

Notice.

The fourth Annual Report, on the Geological survey of the state of Pennsylvania, is published: it is an important and interesting work. The geologist expresses his opinion, that the researches in the field will be brought to a close by the first day of April, 1841, at the expiration of the five years for which the appropriations were granted by the legislature; and that an extra session of six months more will, he hopes, suffice for the production of the final report, the completion of the geological map of the state, and numerous illustrative drawings; with chemical analyses of ores now carrying on, and an organization of a Geological Cabinet, containing between six and seven thousand specimens.

The present report, 215 pages of interesting matter, contains elaborate descriptions of our mineral resources, particularly coal, iron, and limestone; and the sixth chapter, the last, is devoted to the various analyses of iron ore, referred to the body of the report, amounting in the whole to one hundred and four distinct analyses. We regret exceedingly, that another chapter had not been added, to contain the various analyses of limestones throughout the state; but as these are promised at the fulfilment of the work, we must await the issue, in the hope of receiving a very full and particular account, the importance of which, to the agriculturist, is scarcely to be fully appreciated, at the present moment of anxious inquiry.

The quantity of rain which fell during the 5th month, (May,) was..... 2.69 inches.

John Conrad.

Pennsylvania Hospital, June 1, 1840.

Notice to Correspondents.

Mr. Peter Diehl's notice has been handed to the committee; in the present number of the Cabinet he will find the amount of premiums specified.

T. W. will please forward us the papers.

R. M. will find his suggestions anticipated.

Will "Weed Puller" inform us of his place of residence?

A. D. will hear from us.

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